To evaluate and make recommendations for improvement to the MBChB Rehabilitation Programme of the University of Stellenbosch

Dr Helen Sammons

Student Number: 13714732

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Supervisor: Ms G Mji

Co-supervisor: Dr J Hugo

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Declaration

By submitting this thesis, I declare that the entirety of the work contained herein is my own, original work, that I am the owner of the copyright thereof and I have not previously in its entirety or in part submitted it for obtaining any qualification.

Signature:

Date: 12/11/2012

Abstract

The Centre for Rehabilitation Studies, Faculty Health Sciences, University of Stellenbosch, South Africa, delivers a rehabilitation training programme to its MBChB students. The aim of this programme is to equip graduates with the knowledge, skills and attitudes to manage persons with disabilities in the community which aligns with both the faculty mission and the National Department of Health's 2010 Plan. In line with rehabilitation philosophies a generic approach using the International Classification of Function, Disability and Health is used in this programme.

Feedback has been received from the students at the end of each of the rehabilitation modules and the programme has been reviewed annually by the Module Chair Persons and Rehabilitation Programme Co-ordinator. It had however never been formally evaluated and hence the need for this study.

In this study a cross-sectional description of the programme was made using the framework of the World Health Organisation approved World Federation for Medical Education's Global Standards for basic medical education. Sixty five themes were arranged according to the original nine areas of the standards. Interviews and questionnaires were designed and documentation was reviewed to obtain quantitative and qualitative data from direct and indirect stakeholders from nine population samples. Participants included faculty staff, students as well as rehabilitation experts and persons with disabilities.

The analysis of the results of the data collected between March and September 2011 showed that the programme was compliant against 40 of the 65 indicators. The programme was compliant regarding the area pertaining to the mission and objectives and largely compliant regarding the content and delivery of the programme. Where there was non compliance or room for improvement regarding the content, delivery and assessment of the students, recommendations were made, reviewed by the programme committee in November 2011 and implementation was planned for January 2012. Shortcomings identified in the training and support of teaching staff, availability of training resources and in the administrative support of the programme were referred to the Head of the Centre for Rehabilitation Studies. Non-compliance regarding electives and enrolment of medical students with disabilities was considered beyond the immediate control of the programme

and were to be referred to the Faculty Health Sciences management. The results showed non-compliance of monitoring and evaluation of the programme, supporting the original need for this study.

The indicators were deemed comprehensive and relevant for this evaluation of the rehabilitation programme. It was recommended that four indicators be refined according to the results of this study and that the lists of heath conditions and bio psychosocial problems that persons with disability experience be further validated. Three changes to the tools were recommended should they be used for repeat evaluations of the programme. It was recommended that the methods used to monitor the programme be reviewed allowing for more specific feedback against selected indicators, with wider stakeholder input including lecturers. A final recommendation was that the post of the Rehabilitation Programme Co-ordinator be evaluated in order to effect these recommendations.

Opsoming

Die Sentrum vir Rehabilitasie Studies, Fakulteit Gesondheidswetenskappe, Universiteit van Stellenbosch, Suid-Afrika, lewer 'n rehabilitasie-opleidingsprogram aan sy MBChB-studente. Die doel van hierdie program is om gegradueerdes met die nodige kennis, vaardighede en gesindhede toe te rus om persone met gestremdhede in die gemeenskap te kan behandel wat in lyn is met die fakulteit se missie en die Nasionale Departement van Gesondheid se 2010 Plan. In ooreenstemming met rehabilitasie filosofieë word 'n generiese benadering volgens die Internasionale Klassifikasie van Funksie, Gestremdheid en Gesondheid in hierdie program gebruik.

Terugvoer is van die studente aan die einde van elk van die rehabilitasie modules ontvang en die program is jaarliks deur die Module voorsitter en Rehabilitasie Program-koördineerder hersien. Dit was egter nooit formeel geëvalueer nie en daarom die behoefte vir hierdie studie.

In hierdie studie is 'n deursnee beskrywing van die program gemaak deur gebruik te maak van die raamwerk van die Wêreld-Gesondheidsorganisasie goedgekeurde Wêreld Federasie van Mediese Onderwys se globale standaarde vir basiese mediese opleiding. Vyf-en-sestig temas is volgens die oorspronklike nege gebiede van die standaarde gerangskik. Onderhoude en vraelyste is ontwerp en dokumentasie is hersien om kwantitatiewe en kwalitatiewe data te verkry van direkte en indirekte belanghebbendes uit nege bevolking monsters. Deelnemers het fakulteit personeel, studente, sowel as rehabilitasie kundiges en persone met gestremdhede ingesluit.

Die ontleding van die resultate van die data wat ingesamel is tussen Maart en September 2011 het getoon dat die program aan 40 van die 65 aanwysers voldoen. Die program voldoen met betrekking tot die gebied van die missie en doelwitte en is grootliks in ooreenstemming met betrekking tot die inhoud en aflewering van die program. Waar daar nie-nakoming was of ruimte vir verbetering ten opsigte van die inhoud, lewering en beoordeling van die student was, is aanbevelings gemaak in November 2011, deur die program komitee hersien en implementering was vir Januarie 2012 beplan. Leemtes geïdentifiseer in die opleiding en ondersteuning van die doserende personeel, die beskikbaarheid van opleiding hulpbronne en in die administratiewe ondersteuning van die program is verwys na die Hoof van die Sentrum vir Rehabilitasiestudies. Nie-nakoming ten

opsigte van elektiwe en die inskrywing van mediese studente met gestremdhede was buite die onmiddellike beheer van die program oorweeg en sou na die Fakulteit Gesondheidswetenskappe verwys word. Die resultate het nie-nakoming van monitering en evaluering van die program getoon, wat die oorspronklike behoefte vir hierdie studie ondersteun het.

Die aanwysers was omvattend geag en relevant vir die evaluering van die rehabilitasieprogram. Dit was aanbeveel dat vier van die aanwysers volgens die resultate van hierdie studie verfyn moet word en dat die lyste van die Gesondheids kondisies en bio-psigososiale probleme wat persone met gestremdhede ervaar verder valideer moet word. Drie veranderinge is aan die instrumente aanbeveel sou hulle vir herevaluering van die program gebruik word. Dit is aanbeveel dat die metodes wat gebruik word om die program te monitor, hersien moet word, met voorsiening vir meer spesifieke terugvoer teen gekose aanwysers, met wyer belanghebbendes se insette insluitend dosente. 'n Finale aanbeveling was dat die pos van die rehabilitasie-program-koördineerder geëvalueer moet word ten einde hierdie aanbevelings aan te bring

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Definition of terms

1	**Bio psychosocial model**	This model views all nature to be a hierarchy of systems: organelles, cells, tissues, organs, persons, family, community, society. It implies that disease and its impact must be considered simultaneously in managing any patient (Gutenbrunner, Ward & Chamberlain, 2007).
2	**Disability**	Disability is a global term for deficiencies in body structures and functions (or impairment), activities (or activity limitation) and participation (and participation restriction) (World Health Organisation, 2001). This is fully discussed in section 2.3.1.
3	**Global rating scales**	These are used in conjunction with graded scales for the assessor to consider whether the student has achieved the expected outcome or not (Cilliers, 2008).
4	**Inter disciplinary team work**	This team focusses on solving a common set of problems. Members meet regularly. Members preserve specialised functions (Gibbon, 1999; Long, Kneafsey & Ryan, 2003; Choi & Pak, 2006). This is elaborated on in section 2.3.5.
5	**Medical model**	This traditional medical school approach focuses on disease and cure there of (Block, Ricafrente-Biazon, Russo, Chu, et al, 2005). This is discussed in section 2.3.2.
6	**Multi disciplinary team work**	In this team, members work in parallel and communicate via the doctor (Gibbon, 1999; Long, Kneafsey & Ryan, 2003; Choi & Pak, 2006). This is elaborated on in section 2.3.5.

7	**Rehabilitation**	Rehabilitation is a process including medical and surgical modification of the impairment, compensation for impairment through provision of assistive devices and modification of the environment, facilitation of social change, acceptance of disability and equalisation of opportunities (Office of the Deputy President, 1997; Office of the Premier of the Western Cape, 2002) which enables *"an impaired person to reach an optimum mental, physical and/or social functional level"* (Department of Health, 2000, pp31). This is fully discussed in section 2.2.4. The abbreviation 'rehab' was used by some sample respondents and in the histograms.
8	**Social model**	This model sees disability as a reflection of an unaccommodating society (Byron, Cockshot, Brownet, et al, 2005). This is elaborated on in section 2.3.2.
9	**Standardised patient**	A professional or lay person with or with out a health condition trained to depict a heath condition or problem in a standardised way (Long-Bellil, Robey, Graham, et al, 2011).
10	**Trans disciplinary team work**	In these teams, roles are blurred. Team members assume the roles of other members (Gibbon, 1999; Long, Kneafsey & Ryan, 2003; Choi & Pak, 2006). This is elaborated on in section 2.3.5.

Clarification of terms used in this study

(listed parallel to clarify distinction between terms)

Discipline: refers to various health care professionals (e.g. **therapists** (physio, occupational and speech therapists), nursing, medical doctors, social workers, clinical psychologists, dieticians).

Speciality: refers to medical specialisation of doctors for example Family Physicians, Neurologists.

Rehabilitation professionals: are professionals of the disciplines and specialities familiar with the field of disability and rehabilitation. (Abbreviated RP in tables only)

Team members: is used to encompass all rehabilitation professionals, non-medical and lay persons involved in the rehabilitation of persons with disabilities.

Division is the term used on the University of Stellenbosch website to define an academic discipline or speciality and **Department** is used as the structure to which it belongs, i.e. the Divisions of Family Medicine and Physiotherapy both belong to the Department of Interdisciplinary Health Sciences. The Centre for Rehabilitation Studies, although a centre is also listed as a division of the same department

Department is used in this study to describe an academic unit in general or a unit outside of the University of Stellenbosch, locally or internationally.
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Evaluation: is used with reference to the compliance of the Rehabilitation programme with the indicators.

Assessment; is used with reference to student performance.

General practitioner: A medical doctor that practices in public or private primary health care.

Family Physician: A general practitioner who has obtained a Masters in Family Medicine.

Primary health care practitioner: any clinician (doctor or other discipline) who practices in a primary health care setting.

Indicators: in this study this refers to the items against which the University of Stellenbosch Rehabilitation programme was evaluated.

Standards: This applies to the World Federation for Medical Education's Global standards for basic medical education from which the indicators were developed.

Patient: Is a person with a health condition that requires services of the health care system in general. In rehabilitation circles, the term **client** is frequently used. This term is however not commonly used in a medical school environment and has been avoided in this study. Although the term patient may suggest a medical model approach and client a social model, none of these are implied in this study and a bio psychosocial model is rather adopted.

Person with a disability: In this study this term is used to specify patients with a disability as described above. The acronym PwD as been used in the past but is not advocated. It is however used in the presentation of the results to simplify the histograms. Select individuals may be considered to be **experts** in disability and rehabilitation due to their personal experience and others as **advocates** for the needs of persons with disabilities.

Phase: The US divides the four clinical years of the MBChB curriculum into early, mid and late phases. They vary between 12 to 21 months each.

Module: A number of modules occur within each phase where time is spent with one speciality. They vary from two to five weeks in length.

Programme: refers to the components of the curriculum for example the Rehabilitation programme. The adjectives teaching, learning or educational programme are used interchangeably in the literature but are avoided in this study.

University of Stellenbosch. This name is used interchangeably with Stellenbosch University on university websites and letterheads. The researcher has used the former name in this study.

Curriculum: Refers to the combination of all the programmes that leads to a qualification for example the MBChB curriculum.

List of acronyms

AAMC	Association of American Medical Colleges
ADLs	Activities of daily living
APD	Association for the Physically Disabled
AAPMR	American Academy of Physical Medicine and Rehabilitation
ASCI unit	Acute Spinal Cord Injuries unit
CBE	Community based education
CCE	Centre for Clinical Education
CCRD	Centre for Care and Rehabilitation of the Disabled
CH	Conradie Hospital
CHC(s)	Community Health Centre(s)
CHE	Council of Higher Education
COPD	Chronic obstructive pulmonary disease
COSMO(s)	Community service medical officer(s)
CPD	Continuing professional development
CRS	Centre for Rehabilitation Studies
CSP	Comprehensive Service Plan
CSI	Chris Steytler Industries
CTL	Centre for Teaching and Learning
CVA	Cerebro vascular accident (or stroke)
DG(s)	Disability grant(s)
DOCS	Direct observation of clinical skills
DoH	Department of Health
DVT	Deep vein thrombosis
EC	Eastern Cape

e-mail	Electronic mail
FHS	Faculty of Health Sciences
GP(s)	General Practitioner(s)
GMC	General Medical Council
GMER	Global minimum essential requirements
GSH	Groote Schuur Hospital
HBC	Home Based Carer
HEQC	Higher Education Qualifications Committee
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HPCSA	Health Professions Council of South Africa
ICD-10	International Classification of Disease version 10
ICF	International classification of function, disability and health
ICIDH	International Classification of Impairments, Disabilities and Handicaps
ICU	Intensive care unit
IIME	Institute for International Medical Education
IPLO	Interprofessionele Leer & Onderrig (Inter-professional learning and teaching)
IT	Information technology
KBH	Karl Bremer Hospital
MBChB	Bachelor of Medicine, Bachelor of Surgery
MCQ(s)	Multiple choice question(s)
MEDUNSA	Medical University of Southern Africa
M Fam Med	Masters in Family Medicine
MIDS	Modified Issues in Disability Scale
mini-CEX	Mini clinical evaluation exercise
MOP(s)	Medical Orthotist and Prosthetist(s)

MSc (Rehab)	Masters of Science in Rehabilitation
n	Number of sample respondents
NCS	National Core Standards
NGO	Non Governmental Organisation
NQF	National Qualifications Framework
OPC	Orthotic and Prosthetic Centre
OSCE	Objective structured clinical examination
PBL	Problem based learning
PMB	Prescribed minimum benefits
PM&R	Physical Medicine and Rehabilitation
PPAA	Preventative Pulmonary Academic Award
RPC	Rehabilitation Programme Co-ordinator
PwD	Person with a disability
QASA	Quadriplegic Association of South Africa
RCS	Rural Clinical School
RIPLS	Readiness for Inter Professional Learning Scale
RPC	Rehabilitation Programme Co-ordinator
SA	South Africa(n)
SACSSP	South African Council for Social Service Professions
SANC	South African Nursing Council
SANRA	South African Neuro Rehabilitation Association
SAQA	South African Quality Assurance
SASCA	South African Spinal Cord Association
SASPI	South African Stroke Prevention Initiative
SASSA	South African Social Services Agency
SCI	Spinal cord injury

SPMS	Staff Performance Management System
SSM	Special study module
SWOT analysis	Strengths, weaknesses, opportunities and threats analysis
TB	Tuberculosis
TBH	Tygerberg Hospital
UCT	University of Cape Town
UK	United Kingdom
UNITRA	University of Transkei
UP	University of Pretoria
US	University of Stellenbosch
USA	United States of America
WC	Western Cape
WCRC	Western Cape Rehabilitation Centre
WFME	World Federation for Medical Education
WHO	World Health Organisation

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Chapter 1
Introduction

1.1 Introduction

This chapter provides the background to the study. It outlines the need for a training programme in rehabilitation for undergraduate medical students. The Rehabilitation programme for the Bachelor of Medicine, Bachelor of Surgery (MBChB) curriculum of the Faculty of Health Sciences (FHS), University of Stellenbosch (US) is described. This is as it was delivered in 2007, at the time of initiating this study, with its perceived challenges and thus the reason for its evaluation. Changes to the programme that have occurred while this study has been in progress up to the time of making recommendations at the end of 2011 are also included. The aim and objectives are stated and the conceptual framework developed for the study is presented. The chapter concludes with the significance of this study and the study process that was followed.

1.2 Background

1.2.1 The need for undergraduate Rehabilitation training for medical students

The researcher, a medical doctor, took up employment at the Centre for Care and Rehabilitation for the Disabled (CCRD) in 1993. The vision of the CCRD was to be a leader in the field of disability and rehabilitation through service delivery, under- and post graduate training as well as research. The academic component was part of Community Health, FHS, US based at the Tygerberg Hospital (TBH) campus and the clinical component based at Karl Bremer Hospital (KBH) was funded by the Western Cape (WC) Department of Health (DoH).

From the researcher's experience, the role of the doctor was to confirm the diagnosis, establish a prognosis and optimise medical care to maximise rehabilitation potential of patients with physical disabilities admitted to the CCRD. This included managing the presenting problems as well as screening for potential complications. Failure to do so could result in increased disability in the individual and burden on the health care system. However, as described in the World Health Organisation's (WHO) International Classification of Function, Disability and Health (ICF) (WHO, 2001) disability includes more than the health condition or impairment as the individual's ability to perform daily activities and to participate in society could also be effected. Disability is thus not a problem within

the individual but becomes apparent when the person with an impairment is faced with barriers and resources which either challenge or facilitate integration into their community (Byron, Cockshot, Brownet, et el, 2005).

The CCRD adopted the definition of rehabilitation as being a process including medical and surgical modification of the impairment, compensation for impairment through provision of assistive devices and modification of the environment, facilitation of social change, acceptance of disability and equalisation of opportunities (Office of the Deputy President, 1997; Office of the Premier of the WC, 2002). The goal of rehabilitation was outlined in the South African (SA) National Rehabilitation Policy (DoH, 2000, pp31) as enabling *"an impaired person to reach an optimum level of physical, mental and/or social function*."

In order to comprehensively manage the complex and comprehensive needs of these persons with a disabilities, inpatients of the CCRD were managed by an interdisciplinary team comprising medical doctors, nursing, physio, occupational and speech therapists, and social workers, with referral to medical specialists as required. The doctor was thus required to not only attend to the medical and surgical needs of the patient but also required good interpersonal communication skills to contribute to effective interdisciplinary team functioning (Gibbon, 1999; Hall & Weaver, 2001) and referral. The doctors were however expected to independently manage patients coming to the outpatient clinic. The researcher applied knowledge and skills learnt from the inpatient team and was able to address not only the medical but also the functional and social problems that persons with disabilities experienced thus applying a generic or at times a transdisciplinary approach.

The researcher became aware that this approach was not only required by doctors working in specialised rehabilitation services but by all doctors who encounter persons with disabilities in all spheres of clinical practice. Doctors irrespective of their positions (clinical, academic or administrative), nature of their career (generalist or specialist) or age, influence the health of persons with disabilities. At an administrative level, doctors in the public and private sector hold influential posts as heads of institutions, clinical managers and medical insurance advisors make decisions regarding policies and practices which impact on the care of all patients including those with disabilities.

From a clinical perspective doctors in primary health care are gatekeepers to holistic management in the public sector due to policies such as the Comprehensive Service Plan (CSP) of the WC DoH (DoH: WC, 2005) and in the private sector by health funders. According to the 2010 CSP, 80% of public health care is to be provided at primary health care level with prevention and initial management of new impairments or complications. By taking health care to the people, the cost per patient is less than at secondary or tertiary level and in the absence of effective transport systems, services are readily accessible. In SA, national (DoH, 2000) and provincial (DoH, 2002) Integrated National Disability Strategies and internationally in Europe (General Medical Council (GMC) 2003; Aulagnier, Verger, Ravaud, et al, 2005) and the United Kingdom (UK) (Murray, Todd & Modell, 1997) there has been a move to integrate health services for persons with disabilities into mainstream systems. Once stabilised patients with disabilities may be referred to residential and community based rehabilitation services. Where these services are limited, as in the WC, even those who have had specialised rehabilitation services are discharged to primary health level community practitioners for their maintenance needs (McInnes, Mira, Atkin, et al, 1999; Fehrsen, 2007).

In the public and private sector, it has been documented that community based General Practitioners (GPs) are the most appropriate and suitably placed practitioners to attend to the needs of persons with disabilities (Saissi, Mansoon, Madani & Rayegani, 2006). Because primary health care deals with health promotion and chronic care, patients who present with new impairments may be known to the GP (Redfern, McKevitt, Rudd & Wolfe, 2002). This could be the hypertensive who presents with a stroke or the tetraplegic with a urinary tract infection. Redfern, McKevitt, Rudd and Wolfe (2002) further noted that patients with chronic conditions felt more comfortable with GPs attending to their long term needs than specialists.

GPs were documented as being ideally positioned to have unique insight into the patients' immediate environment, family and community to facilitate optimal reintegration (Brimblecombe, Kuh, Lawrence & Smith, 1986) and maintenance of support structures (Hare, Rogers, Lester, et al, 2006; Riley, 2007). The possibility of forming longer term relationships could facilitate empowerment of the person with a new onset disability so that they could take responsibility for their own health monitoring and maintenance (Von Korff, Gruman, Schaefer, et al 1997, Al-Dabbagh & Al-Taee, 2005; Langhammer, Lindmark & Stanghelle, 2007; Wade & Halligan, 2007) and prevention of complications

(Redfern, McKevitt, Rudd & Wolfe, 2002; Simpson & Tate, 2007) thus maintaining or even improving outcome levels attained (Cope & Sundance, 1995), in the long term.

Newly qualified graduates are required to complete their community service medical officer (COSMO) year in public health facilities, ideally at community level where Family Physicians are the recognised specialists. Thus rehabilitation knowledge needs to be transferred to these doctors before they qualify as general medical practitioners.

Doctors working in speciality areas also encounter persons with disabilities. Impairment arises from disease processes peculiar to any speciality, for example a stroke (or cerebro vascular accident (CVA)) managed by a neurologist, or a disfiguring dermatological condition impacting on an individual's activities and participation due to societal reaction. Certain impairments are prone to complications which are managed by specialists e.g. a paraplegic may need to consult an urologist to have bladder stones removed (Rosemann, Wensing, Joest, et al, 2006). Apart from these specific complications, persons with disabilities may experience the same problems as the general population. For example a female with ataxia following a head injury may present to a gynaecologist with post menopausal bleeding, to internal medicine with hypertension or to dermatology with psoriasis (Wei, Findley & Sambamoorthi, 2006).

In any acute setting doctors require the ability to manage disability (Ward, 1992; Laskowski, Moutvic, Smith, et al, 2000; Dimyan, Dobkin & Cohen, 2008). Able bodied persons admitted for acute conditions, e.g. pneumonia, are susceptible to hospital associated deconditioning and disability (Kortebein, 2009) and patients with chronic disability who would normally do their own health monitoring, are not able to maintain this due to changes in their physical environment, lack of normal support structure, or due to a depressed level of alertness (Quadriplegic Association of SA (QASA), 2009).

Apart from the insight to be aware of the possible physical, functional and social consequences of disability, there are practical issues at hand. For example, how does the gynaecologist in the afore mentioned setting get an ataxic patient onto an examination couch to do the necessary examination? How is a clinician able to obtain a history from a patient with a communication problem, should they have presented without an escort. Lack of such skills may challenge the doctor's abilities and cause physician discomfort which could impact on the attitude with which the patient is dealt with (Aulagnier, Verger,

Ravaud, et al, 2005). According to Byron and Dieppe (2001) the inability to cure or fix the underlying impairment may also challenge the doctor's role in the management of disability. Such negative attitudes could impact on service delivery to persons with disabilities (Paris, 1993). Chapter 2, Section 9 of the Constitution of SA (1996, website accessed 25/11/2007) protects against discrimination. Article 3 of the Disability Rights Charter demands that "*Health and rehabilitation services shall be effective, accessible and affordable to all disabled people of South Africa*" (Disability Rights Unit of Lawyers for Human Rights, 2000)

Internationally (Rubenstein, Calkins, Young, et al, 1989; Davids, Calkins, Rubinstein, et al, 1991; Middleton, Sharpe, Harris, et al, 2003; Bulsara & Fynn, 2006) and in SA (De Villiers and De Villiers, 2006) it was acknowledged that GPs poorly detect and manage disability. This was in part due to poor undergraduate exposure to Physical Medicine and Rehabilitation (PM&R) (Raissi, Mansoori, Madani & Rayegani, 2006). De Villiers and De Villiers in 2006 specifically listed rehabilitation and amputations as knowledge and skills gaps in GPs of the WC.

The researcher was thus of opinion that all medical practitioners require rehabilitation knowledge, skills and attitudes to provide equitable services to all patients, including those with disabilities. In order to reach all practitioners, rehabilitation training needs to be included in undergraduate medical training at all universities in SA.

1.2.2 The undergraduate Rehabilitation programme for MBChB, University of Stellenbosch

1.2.2.1 Development of the programme

The aim of the MBChB Rehabilitation programme is to equip graduates of the US with the knowledge, skills and attitudes to manage the multiple and complex needs of persons with disabilities. When the researcher joined the CCRD in 1993, there was an established Rehabilitation programme for the MBChB students of the US. The researcher became involved in the delivery of this 20-hour programme which was delivered during a week in the fifth year of the MBChB curriculum. Six to ten students rotated at a time through the clinical site of the CCRD at KBH. The programme included an introduction, practical disability awareness and tutorials on amputation and stroke. The students evaluated a person with a disability, shadowed the patient attending therapy sessions, discussed the therapeutic programme with the doctor, nurse, therapists and social worker and then wrote

up their findings as a case study. An oral or written examination was conducted by the KBH doctors at the end of the week. A lecture was also given to the entire MBChB class during the second half of the fifth year.

This Rehabilitation programme was phased out from 2001 to 2004 with the US's revision of the MBChB curriculum. This process was started in 1997 so that the new curriculum would be ready for implementation with the intake of first year MBChB students in 1999. The Head of the CCRD elected the researcher to become involved in this process.

Rehabilitation was allocated time together with Family Medicine and Community Health, within the three clinical (early, mid and late) phases. It was predetermined that the modules in these phases would be introduced to the students from their third year of study, in 2001. In addition to these 40 clinical hours, approximately 30 hours of lecture time was allocated in a theoretical module in the fifth year. An evaluation by means of an objective structured clinical examination (OSCE) in the sixth year contributed to the final MBChB assessment mark. Each of the clinical and the theoretical modules was assigned a chair and an overall chair of the combined programme was selected. The relationship of these teaching and learning exposures is shown in table 1.1 at the end of this section.

Compared to the former programme, the training started earlier in the curriculum, i.e. in the third year compared to the previous fifth year, teaching time was approximately doubled and there were four separate opportunities to interact with the students versus two in the former programme. It gave the CCRD an opportunity to reflect on the former programme and to address perceived deficiencies thereof, namely that it was activity focussed, disease orientated and institution based.

The researcher acknowledged that her rehabilitation experience was mainly in adult physical rehabilitation. In order for future doctors to be able to address all types of disability (sight, hearing, communication, physical, intellectual, and emotional) as classified in the population census of 2001 (Lehohla, 2005), a generic approach was advocated. In consulting colleagues from other disciplines involved in various aspects of rehabilitation, the need for an interdisciplinary teaching and learning activity was also identified. This was organised in collaboration with the Divisions of Physiotherapy, Occupational and Speech therapy at the US.

An outcome-based curriculum development and renewal project was facilitated by education experts from the US Centre for Teaching and Learning (CTL). The overall outcome of the revised MBChB curriculum was contained in the Profile of the Stellenbosch Doctor which had been developed by the US, which stated that "*the Stellenbosch doctor must possess the knowledge, skills and attitudes...to be able to function autonomously in the primary health care sector*..." (refer to appendix 1). Rehabilitation, Family Medicine and Community Health collaboratively developed outcomes to address each competence in this profile. This profile appealed to the CCRD as rehabilitation interventions at primary level were considered to have a greater impact on long-term outcome for the person with a disability than rehabilitation interventions at specialist rehabilitation facilities (Fjaertoft, Indredavik & Lydersen, 2003; Langhorne, Taylor, Murray, et al, 2005).

Each contributor to the programme was also guided to develop specific outcomes for their component of the modules. The overall goal of the Rehabilitation programme was to equip future doctors with the knowledge, skills and attitudes to identify and manage problems and potential complications in a person with a disability in the community. Clear aims and objectives were defined for each phase and these together with activities and student assessment methods were clearly documented in a study guide for each clinical and theoretical module. The aims and objectives for each exposure are summarised in table 1.1 and detailed in the following section. Assessment methods are also included in this table for presentation later in this section. The contents and mode of delivery of the programme remained predominantly unchanged from 2001 until 2007 when this study was initiated, with minor changes taking place during the course of this study. The extracts from the 2010 study guides are thus provided in appendices 2-5 to provide further detail.

Table 1.1: Outline of the MBChB Rehabilitation programme implemented in January 2001

Year of study	Year III Jan-Nov	Year IV Jan-Nov	Year V Jan	Year V Feb - Aug	Year V Sep-Nov	Year VI Jan-Nov
Clinical exposures	Early phase	Mid Phase			Late phase	
Aims and objectives	Introduction to disability and rehabilitation. Understand how barriers and resources enable or limit integration into society. Understand the impact of disability on an individual, their family and community.	Identify the problems and potential complications of person with a disability. Apply early phase learning to prognosticate outcome and draw up a management plan.			Appreciation for inter disciplinary team work. Assessment of work potential of a person with a disability.	
Assessment	Oral presentation of findings.	Presentation of findings in a simulated interview where students must explain the management plan to the patient.			Written case study and reflection on the interdisciplinary activity. Completion of a disability grant (DG) application form for the chosen case.	
Non-clinical exposures			Theory block			OSCE
Aims and activities			Lectures covering all theoretical aspects of disability and rehabilitation.			Assessment of all rehabilitation knowledge, skills and attitudes.
Assessment			Written test and an exam.			Two stations in an OSCE exam.

1.2.2.2 Early phase module activities

The early phase module comprises four sessions which occur at weekly intervals. During the introduction the Rehabilitation Programme Co-ordinator (RPC) welcomed the approximately 40 students to rehabilitation and gave an overview of the programme over the four years. The activities of the rotation as set out in the study guide (refer to appendix 2) were explained and students were given a compilation of narrative notes revised in 2007, covering definitions of disability and rehabilitation, the ICF, outcome levels, the role of team members and types of team work, rehabilitation service delivery, disability rights and the evaluation of a person with a disability.

Up to 2008 the initial introduction included a slide show presentation explaining the physical, functional and environmental evaluation of a person with disability. There after a person with a disability spoke to the students. The revised activity focussed on the ICF as

a global picture of the patient within their individual context, followed by a video of a patient which demonstrates the components of the ICF. The students then worked through a list of questions based on the ICF to understand the patient's disability.

At the end of the first session the students were divided into 10 – 12 groups of three to four students each, and were given the names of patients who had completed ambulatory (at Bishop Lavis) or residential (at Western Cape Rehabilitation Centre (WCRC)) rehabilitation programmes. The students were guided how to make contact with the patient and conducted a home visit to evaluate the patient within the frame work of the ICF. This activity was further refined with the students in 2010 having an opportunity to visit the relevant rehabilitation facility to discuss the rehabilitation programme with the clinical staff who had treated the patient. The WCRC site was providing an efficient learning opportunity according to the RPC.

At the end of the early phase rotation the RPC assessed students by means of a group presentation. They were provided with a marking schedule in their study guide as well as narrative as to what content was expected in the presentation. A limitation was the time allocated to allow all students to present as well as to have a short discussion on the case. Listening to 10-12 presentations was taxing for both students and a single assessor. The students were required to rate the contribution that their three to four colleagues in their group had made to the assignment.

1.2.2.3 Mid phase module activities

In the two-week mid phase module 10 – 12 students were divided amongst five to six rural areas. Approximately 13 sites were used on a rotational basis. Initially there was contact with the students before them going off to their sites, but this was stopped to maximise the time at the rural site. Students were given a compilation of narrative notes which covered a generic list of bio psychosocial problems that persons with disabilities may encounter and notes on wheelchair seating, stroke and amputation, written by the researcher in 2001. The study guide (refer to appendix 3) contained the details of the activities and the site co-ordinator, a Family Physician, supervised the rotation. The team members at the sites, mainly therapists and occasionally nursing staff, organised a patient with a new onset disability for the student. With time there has been a shift from traditional disabling health conditions to those who demonstrate the definition of disability according to the ICF as will be discussed in chapter 2. The students then assessed the patient and discussed the case

with the team members. Students were expected to identify the patient's current problems and potential complications from a bio, psychosocial perspective. In order to advance the level of learning from the early phase, they had to establish a management plan indicating how they would effect it should resources not be available as may occur in the rural areas. During the feedback session, direct contact with the researcher at WCRC allowed a brief discussion and practical demonstration of prosthetics.

The mid phase was assessed by the researcher with the students presenting their case as if they were discussing the case as a health professional with the patient or family. Again a marking schedule guided the students. At the end of each presentation there was a short discussion around the bio psycho and social aspects of the case. Here the time allocated was more acceptable with each group of two to three students having 15-20 minutes and there being four to six presentations in a session. The researcher however found that students did not always pay attention to other presentations and the intended learning across cases did not realise.

1.2.2.4 Late phase module activities

In the late phase module, CRS staff contributed to an on campus introduction where the activities for the module were explained as set out in the study guide (refer to appendix 4). Two to four students then participated in an interdisciplinary patient assessment with students from other disciplines at an ambulatory rehabilitation facility and then discussed their management plan with the treating team. Sessions were facilitated by CRS staff (one being the RPC) at two sites twice in a five week cycle. Bishop Lavis and Elangeni (Paarl) have been the sites for this activity, with WCRC replacing Elangeni in 2011. According to the RPC, only the Bishop Lavis site was providing an optimal learning opportunity, but even this was challenged at times due to the co-ordination of students across the different disciplines. At the ambulatory sites patients were seen at home or at the Community Health Centre (CHC) if they arrived for their appointments. The WCRC with 156 in patient beds has seldom had a problem finding a suitable patient.

At the end of the five-week rotation, 12 - 24 medical students participated in a group discussion to reflect and explore their experience of team work. They then wrote up their reflections and the case study which was then marked according to the marking schedule in the study guide by the respective facilitators.

In addition in the late phase students needed to identify a patient who could have applied for a disability grant (DG). Students were encouraged to choose a less apparent disability, so that the decision re work ability was less obvious, requiring advanced decision making skills. The students reported that they discussed the case with the Family Physician at the site or the DG Doctor and then also had an opportunity to discuss the decision making process with the researcher as facilitator. During the discussion the marking schedule was used as a guide to explain how to complete the DG form. Each of the students discussed their case, to encourage learning across cases. They then completed a DG form which was submitted for marking by the researcher according to the marking schedule in the study guide. There was no feedback given to the students other than their marks on these two late phase assessments.

In 2011 the Rural Clinical School (RCS) was established in Worcester. The late phase activities were in essence offered in the rural setting with some adaptations and integration into the other activities.

1.2.2.5 Theory module activities

The theory block occurred after most but not all students had had their mid phase module exposure. The remainder had the theory block before their mid exposure. The theory block which was delivered in January of the fifth year moved to August of the fourth year as of 2011 with two blocks being delivered in 2011 to accommodate the transition. Each individual lecture had its own outcomes as set out in the study guide (refer to appendix 5), which the lecturers used to prepare their lectures and students relied on to prepare for the theory test and exam. These outcomes were reviewed annually by the RPC.

Lecturers were delivered by staff of the US and WCRC and other ad hoc lecturers representing team members as supported in the literature. There were lectures devoted to traditionally disabling health conditions (stroke, head injury, amputation and spinal cord affliction) as well as the most commonly occurring bio psychosocial problems. Copies of the slides used in the presentations were provided as notes and the students who had not yet completed the mid phase were referred to the notes provided at the beginning of the mid phase module.

In the first few years of the new programme, students used to visit the orthotic and prosthetic centre (OPC) as part of the Theory Block together with Astra School and two

protected workshops (Chris Steytler Industries (CSI) and Oasis). This was terminated due to logistics and the contents where included in the revised theory block.

The theory block was assessed by means of a test immediately after the delivery of the lectures and an exam approximately three months later. The researcher collated questions and memoranda from the lectures, cross referenced them to the study guide outcomes and the lecture notes, and then set the assessment papers. The students were informed that the test focused on a case study and the exam on theoretical questions. The researcher was also responsible for marking all the written papers while multiple choice questions (MCQs) were computer marked.

1.2.2.6 OSCE

The OSCE at the end of the sixth year tested practical and clinical skills using clinical scenarios, photographs and equipment. Attempts have been made to involve patients but logistically this proved to be extremely difficult. The OSCE was set and conducted by the RPC and the researcher, the former attending the pre OSCE meeting and the latter, the post OSCE moderation session. The questions were based on the researcher's clinical experience and although have been referred to as very appropriate for the programme the concern was that students were expected to demonstrate skills that had not been uniformly taught to all students. It had been expected that the students would observe these skills during their curriculum but colleagues from Family Medicine suggested that this was not happening.

1.3 Perceived challenges to the programme and thus motivation for this study

While this Rehabilitation programme was being developed changes within the clinical (DoH) and academic (US) environments, beyond the control of the programme, impacted on its delivery and development. The chronological sequence of events is summarised in table 1.2 and described further in this section.

Table 1.2: Timeline of events impacting on the development of the new Rehabilitation programme

1993	Researcher started working in physical rehabilitation CCRD 20hr MBChB rehabilitation training program in place
1994	First proposal for relocation of clinical services DoH
1997	MBChB, US, Curriculum review process initiated
1999	First year intake for new curriculum
2000	Researcher remained as the only doctor at the CCRD
2001	Implementation of new rehabilitation training program 3rd yr MBChB
2001	Head of CCRD resigned
2002	New Head of CCRD appointed
2003	Amalgamation clinical services CCRD and Conradie Hospital (CH)
2004	Restructuring of the FHS, US, resulting in the Centre for Rehabilitation Studies (CRS) WCRC established and relocated to Lentegeur. Graduation of first group of new curriculum students
To date	Ongoing delivery of the program with ad hoc refinement

1.3.1 Perceived challenges within the clinical environment

In 1993 the clinical component of the CCRD was one of two clinical rehabilitation sites in the WC, the other site being based at Conradie Hospital (CH). From the time that the researcher took up employment at the CCRD proposals were tabled by the WC DoH for the consolidation and relocation of these services. This created uncertainty as to the future of the CCRD and staff turnover in all disciplines increased. With budgetary cuts some of these posts were never re-filled and were eventually removed from the staff establishment. By 2000 the researcher was the only remaining medical officer employed by the CCRD and became solely responsible for the medical clinical and academic aspects of the CCRD. The CCRD, with less staff, was forced to reduce clinical activities, so there were fewer patients available for students to assess during their rotations. Academic activities also had to be reduced so staff had less time to interact with the students. Resignation of experienced staff further impacted on the quality of clinical rehabilitation services and delivery of the MBChB Rehabilitation programme.

The proposed consolidation eventually took place in 2003 and the WCRC was formed. The WCRC was relocated to the Lentegeur premises in 2004. Prior to the move, the distance of less than 5km between the KBH site and the US Medical School at the Tygerberg Campus of the FHS, US, had minimal impact on travel time and cost when attending to activities at both sites. With the relocation the distance between the WCRC

site and the Medical School was increased to approximately 25km. Together with this, the job descriptions of all staff of the WCRC, including those who had been involved with academic activities of the CCRD, were reviewed. After the consolidation and relocation it was considered no longer appropriate that any of these DoH-salaried staff's time should be allocated to academic activities. The distance and revised job descriptions severely impacted on the availability of staff to train the medical students and on the researcher to be involved with the ongoing development of the programme.

1.3.2 Perceived challenges within the US academic environment

At the same time changes occurred at the CCRD. In mid 2001 the Head and only staff member of the CCRD resigned to take up the post as Head of the WCRC. The researcher, being largely involved with the development of the programme and responsible for the delivery of the programme at that stage, became responsible for the maintenance of the new programme. This continued until mid 2002 when a new CCRD head was appointed. This extensive involvement has added to the researcher's understanding of and enthusiasm for the programme.

After the appointment of the new Head, the Medical School became known as the Faculty of Health Sciences, the CCRD was renamed the Centre for Rehabilitation Studies (CRS) and restructuring resulted it being afforded stand alone status alongside Community Health, Family Medicine, Nursing, and Human Nutrition within the school of Public and Primary Health. An additional lecturer post was established at the CRS in 2005, with the view that the incumbent would manage the MBChB Rehabilitation programme. Thus, at this stage, due to the restrictions arising out of the relocation of the clinical services, the researcher handed the responsibility of the programme back to the CRS.

While developing the learning activities, Family Medicine identified a need for students to be exposed to health care in the community and specifically in rural communities. Students were placed in small groups at multiple sites for short periods in the Metropole and in the rural areas with Family Physicians as site co-ordinators as has been described. It was impossible for the CRS to supervise students at these multiple sites, some as far as 200km from Cape Town. As the researcher was the only doctor (but with limited availability) associated with the CRS, many of these sessions were conducted by therapists. The value of information imparted by these disciplines was questioned by students and faculty staff. Where medical rehabilitation doctors had primarily delivered the

former programme at the KBH site, Family Physicians and therapists in the community became involved in more than half of the programme. This meant that there was limited role modelling for these students by doctors working in the field of rehabilitation.

The researcher was concerned that doctors do not choose rehabilitation as a career. In 2007 there were only approximately 15 doctors with rehabilitation expertise working in SA as identified from rehabilitation facilities in SA, registers of the SA Spinal Cord Association (SASCA) and SA Neuro Rehabilitation Association (SANRA) and through the researcher's experience. Working in a management position at the WCRC, the researcher has experienced extreme difficulty in finding willing and suitable candidates to fill the medical officer posts of the WCRC.

However, the CRS was indebted to the GPs who facilitated the rehabilitation tasks and had acknowledged their knowledge and skills gaps in managing disability (De Villiers & De Villiers, 2006). Tutor training programmes have addressed the role of these doctors in rehabilitation with the development of positive attitudes towards disability and rehabilitation. As the aim of the MBChB curriculum is to equip doctors for general practice, these practitioners have served as role models for the students. In implementing rehabilitation interventions within their various practice settings they have become better equipped to manage patients with disabilities in their practices. This has also led to the development of elective rehabilitation modules in the US Masters of Family Medicine (M Fam Med) programme facilitated by the CRS. The CRS also delivers a Masters (Science) programme in Rehabilitation (MSc Rehab) to all disciplines involved in rehabilitation including doctors but this does not afford these doctors medical speciality status.

1.3.3 Perceived challenges regarding the recognition of rehabilitation as a specialty in SA

Because Rehabilitation is not recognised as a speciality by the Health Professions Council of South Africa (HPCSA), there is no requirement for it to be included in undergraduate MBChB training. Discussion with medical colleagues in other specialities in 2007 and 2008 confirmed the opinions of Sorrel, Hinterbuchner and Sakuma (1981), Lane (1983), and Bender and Dijkers (1986) that the lack of specialisation opportunity detracts from rehabilitation being a career option. In SA clinical experience in rehabilitation does not add credit when applying for registrar posts in specialities such as Internal Medicine, Family Medicine, Neurology, Neurosurgery, or Orthopaedics. Without any undergraduate training,

our medical graduates are ill prepared to manage disability (Gledhill, 1987). It has been noted that lack of recognition of disability and rehabilitation as a speciality extends to the clinical sphere where health conditions frequently associated with permanent disability (e.g. stroke) tended to be managed poorly (Laskowski, Moutvic, Smith, et al, 2000; Wagner & Stewart, 2001), receives less funding (Oosthuizen, Scholtz, Hugo, et al, 2004) and involved specialists receive less recognition compared to conditions (e.g. myocardial infarction) which are more likely to resolve without disability (Editor Lancet 2009).

Although the role of the doctor in managing persons with disabilities as described at the outset was clear in the mind of the researcher, this was not true of medical colleagues, who believed rehabilitation to be the responsibility of therapists (Wade, 1998a). The fact that, other than at the WCRC, there are no medical rehabilitation posts in the state and that there are no permanent medical staff on the establishment of the CRS, did not help to challenge this belief (Galicia, Klima & Date, 1997). Delivering a rehabilitation programme within a curriculum that is designed around specialist departments, bearing in mind rehabilitation is not a speciality, and relying on therapists to deliver the programme, challenged the message that was being conveyed to students that they have an important role as doctors in managing disability.

As far as the researcher was aware, the US was the only university in SA that had an academic division dedicated to disability and rehabilitation studies and uniformly offered training in disability and rehabilitation to all its undergraduate medical students. When initiating this evaluation of the US MBChB Rehabilitation programme, the only other references to medical student exposure to disability and rehabilitation in SA were firstly, the Department of Physiotherapy, School of Health and Rehabilitation Science, FHS, University of Cape Town (UCT), which organised an elective in disability awareness for their second or third year MBChB students (Amosun, Volmink & Rosin, 2005). The second exposure was offered by UCT Department of Paediatrics, who exposed fifth year MBChB students to the impact of chronic illness in childhood on the family and community, an exposure which the researcher recalls positively from her undergraduate training at UCT and which led to the introduction of the home visit in the US Rehabilitation programme.

Internationally, even though PM&R is a registered speciality, even offering sub specialisation (Ogle, Garrison, Kaelin, et al, 2001), it has been poorly recognised (Ward, 2001; McLellan, 2002; University of Pennsylvania Health System website accessed

20/04/2007) with other medical specialities questioning the PM&R specialist's competency to attend to the medical aspects of the disability (Greenwood, 2001). In the UK and United States of America (USA) PM&R departments have not been established at all universities and even where departments exist, undergraduate programmes are not automatically offered (Lane, 1983; Kahtan, Inman, Haines & Holland, 1994). Few of the described undergraduate rehabilitation training programmes were offered uniformly to all enrolled medical students (Kahtan, Inman, Haines & Holland, 1994).

As international references were used, differences between international and local undergraduate medical training programmes had to be taken into account. In North America and Australia students receive four years of general training with exposures to specialised fields to direct students towards further specialised training only after which they are qualified to practice (Barzansky & Etzel, 2005). In Europe six years of undergraduate training mimics that of SA programmes, with each medical school developing their own undergraduate curriculum (Michel, Huber, Cruz-Jentoft, et al, 2008) after which specialisation is an optional choice (Vlak, Boban, Franulovic-Golja & Eldar, 2004; Al-Dabbagh & Al-Taee, 2005). Differences between programmes could be attributed to variances in demographics, disease profiles and political agendas (Matsuse, Ozawa, Orimo, et al, 1999; Schwarz, Wojtczak & Zhou, 2004). In SA six years of undergraduate training plus two years internship equips doctors for general practice. A further community service year is obligatory if wishing to practice independently in SA. Thus in SA the education and practice environment suggests that a rehabilitation training programme ought to equip future doctors to manage disability in a primary health care setting.

1.4 The problem

The MBChB Rehabilitation program was developed during this period of progressive change in the FHS, US. At that time there were no other rehabilitation programmes offered to medical students in SA and international medical training and rehabilitation practice was not directly comparable to that in SA. The programme was thus developed on the researcher's prior knowledge and experience from clinical practice and of the previous programme, with input from rehabilitation professionals, under the guidance of education experts from the US CTL, and was influenced by Family Medicine and Community Heath with whom the clinical rotations were shared.

Since implementation of the programme in 2001, with the first cohort of students graduating in 2004, there has been continuous refinement of the programme triggered by annual review by the RPC, Chairpersons of the various modules, and concerns raised on an ad hoc basis by various stakeholders (students, full and part-time lecturers of the CRS and other FHS departments, divisions and faculty administration). The CRS has obtained feedback from the early phase students regarding the rehabilitation exposure using a questionnaire. This however has been limited to a Likert scale scoring of the quality and value of the rotation as well as open comment on the module. Module Chairs have obtained feedback from students using an adapted FHS questionnaire. This has not been specific for the rehabilitation components of the modules but includes a rating of the value and workload of the mid and late phase modules and allows free comment on strengths and weaknesses of the clinical sites, difficulties experienced and suggestions for improvement to the module. The mid phase student feedback also includes comment on the site tutor. Similar forms are used for the combined early and theory modules.

Formal feedback was thus limited and only provided by students. Feedback from other stakeholders was not formally encouraged. Enquiry at the CRS and FHS, US revealed that there was no standard comprehensive programme evaluation tool being used. While the FHS needs to conform to requirements set out by the HPCSA and the South African Qualifications Authority (SAQA) for accreditation purposes, it appeared that the details of individual programmes were left to the discretion of each individual department (SAQA website accessed 20/04/2007). (SAQA is a statutory body of the National Qualifications Framework (NQF), which organises and classifies qualifications in SA (Van Rooyen & Prinsloo, 2002).)

The problem was thus that the MBChB Rehabilitation programme of the US needed to be formally and comprehensively evaluated for the benefit of all stakeholders (faculty management, students, lecturers and patients) and that a suitable tool needed to be developed for this purpose. Periodic ongoing review was also required to address relevance in the changing clinical and academic environment in which the programme was delivered.

1.5 Aim

The aim of the study was to evaluate the Rehabilitation programme of the MBChB curriculum of the University of Stellenbosch and to make suggestions for its improvement.

1.6 Objectives of the study

The primary objective of this study was to evaluate the MBChB Rehabilitation programme of the CRS, FHS, US with secondary objectives being to:

- develop a set of indicators for the evaluation of a SA undergraduate Rehabilitation programme.
- develop research methods and evaluation tools against the indicators to evaluate the US Rehabilitation programme
- analyse the data to describe the strength, weaknesses, opportunities and threats (SWOT analysis) of this programme.
- measure the compliance of the US Rehabilitation programme against the indicators identified for this study.
- make recommendations for the design of an improved, cost effective Rehabilitation programme to the CRS, FHS, US.
- review the suitability of the indicators and the assessment tools used in this study and make recommendations for repeat evaluation and ongoing monitoring of the Rehabilitation programme to the CRS, FHS, US.

1.7 Conceptual framework for this study

This study aimed to evaluate the Rehabilitation programme designed for the MBChB curriculum. As there were no other equivalent programmes at any of the other medical schools in SA it was not expected to find any established evaluation tools in the literature for the purpose of this study. Preliminary review of the international literature also failed to identify the use of tools to evaluate an undergraduate rehabilitation programme. In order to develop tools for this study, a conceptual framework had to be created. The researcher thus grouped the issues that have been raised earlier in this chapter together with other concerns highlighted such as logistical co-ordination of activities, optimum use of teaching methods, availability of lecturers, content of study guides and access to rehabilitation services as teaching platforms. This resulted in three main, but overlapping, areas of influence on the programme as depicted in the following figure.

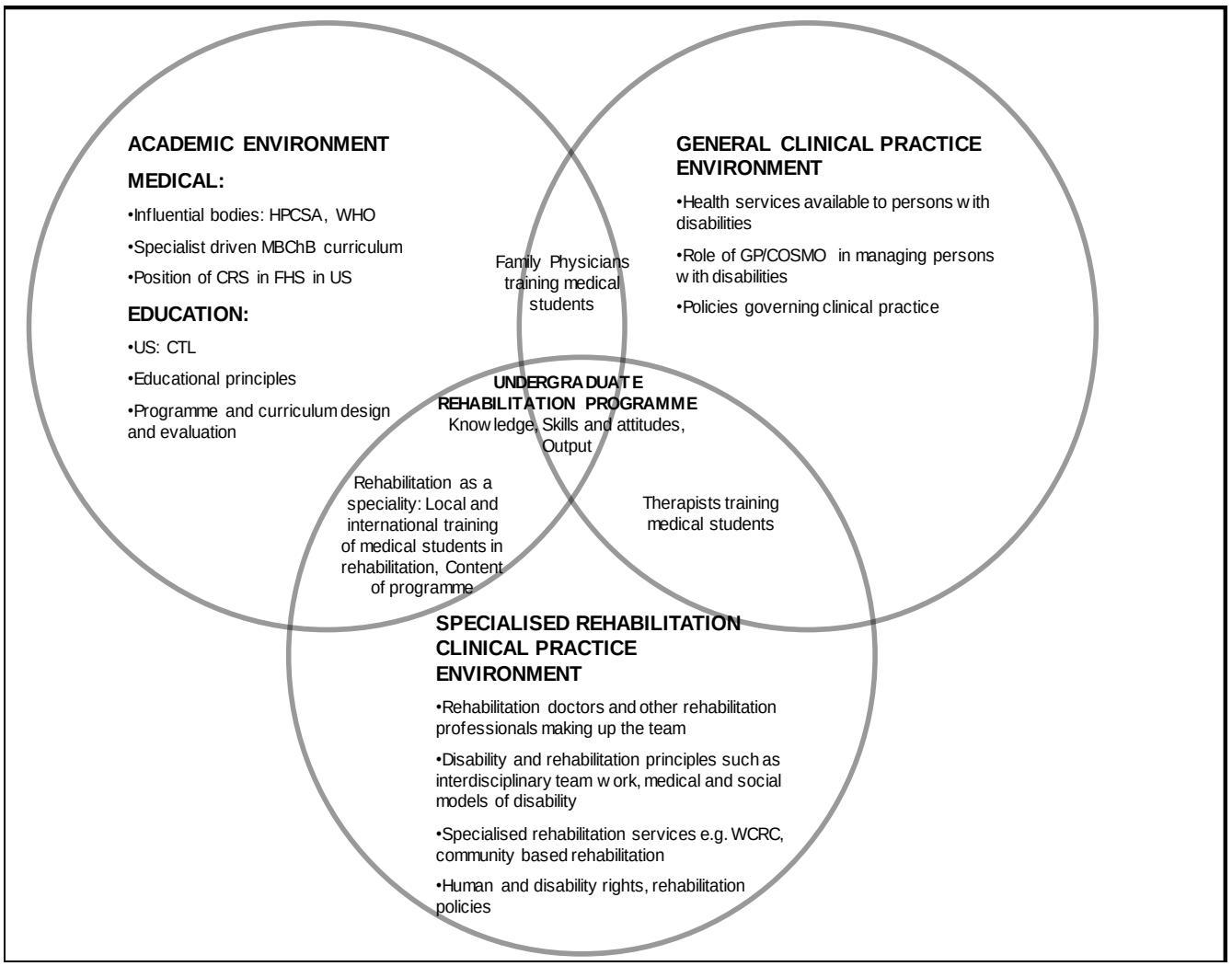


Figure 1.1: Interrelationship of contextual factors in the US MBChB Rehabilitation programme

The three main areas were:

- The general clinical environment in which a large portion of health services are delivered to persons with disabilities which is in line with the CSP (DoH, 2005). This included the role of doctors in these services in managing persons with disabilities. The GPs role in this environment was critical, as the Rehabilitation programme is intended to prepare the graduate to be able to manage persons with disabilities in this environment, and GPs were involved in facilitating rehabilitation learning in the US Rehabilitation programme.
- The specialised rehabilitation environment included rehabilitation professionals who influence the content of the programme. It included overarching rehabilitation philosophies and attitudes as well as specific knowledge and skills which the doctor requires to manage the needs of persons with disabilities. The status of rehabilitation

as a speciality and its impact on undergraduate rehabilitation programmes nationally and internationally carried relevance here too.

- The academic environment included the infrastructure of the CRS, FHS and US, and the medical specialist-orientated milieu of the FHS. Educational principles, strategies and methods, curriculum and programme design and evaluation have had an influence on the MBChB Rehabilitation programme. External to the US, bodies such as the WHO, HPCSA had to be considered.

These three areas together determined the output of the Rehabilitation programme which is thus shown as the area of overlap of all three circles, this being a programme that aims to equip US MBChB graduates with the knowledge, skills and attitudes to manage persons with disabilities in the community.

Until this study was initiated, the CRS has dealt with the challenges as they have arisen by making changes to the modules concerned within the programme. Changes made however had to allow for equal learning opportunities for all the students in a particular year of study. Thus, problems detected through the year could only be addressed at the end of an academic year. This resulted in a cyclical scenario of trial-and-error. This approach could be likened to fighting fires rather than being pro-active in detecting problems.

The US MBChB Rehabilitation programme teaches medical students to detect problems and to be vigilant for a range of potential complications, preventing them before they arise. In the same way, the programme needed to have methods in place to not only identify problems that had come to the fore but also to explore the host of factors that could impact on its delivery before they presented as problems. Although figure 1.1 consolidated the concerns raised evident in 2007, the researcher questioned if this was an adequately comprehensive framework for this study. The literature was thus explored using this figure as a starting point.

The World Federation for Medical Education (WFME) Global Standards for basic medical education (website accessed on 24/08/2007), although relevant to the broader curriculum and not just a specific programme or module thereof, was found early in the literature search and the researcher considered it to be the most relevant and comprehensive, and it included the three main areas of influence on the programme as named above. All other literature found aligned with the WFME standards, but no educational model was as

comprehensive as the WFME standards. A summary demonstrating the association the WFME standards with these other educational models is contained in appendix 6a for reference.

1.7.1 The WFME Global Standards for basic medical education

The standards aspired to improve health of all peoples through high scientific and ethical standards in medical education (WFME task Force, 2000; Van Niekerk, Christensen, Karle, et al, 2003; WFME website accessed 24/08/2007; Karle 2007). The WFME global standards were developed by three international task forces. SA was represented by Professor JP Van Niekerk, Rehabilitation Medicine by Sweden with undergraduate student representation being included.

The standards, finalised in 2001, were endorsed by the WHO, with the basic standards being validated in pilot studies in 11 medical schools around the world (Van Niekerk, Christensen, Karle, et al, 2003; Grant, Marshall & Gary, 2005), further piloted in 24 medical schools with other authors using the standards for self studies (Hays & Baravilala, 2004; Khattab, Badrawi, Sheba, et al, 2004). Criticism of the standards that they promoted global core curricula was limited (ten Cate, 2002) but acknowledged by the WFME as regional appropriateness was encouraged by the standards. The researcher thus considered the WFME standards to be valid for this study, however, none of the articles reporting on the standards and piloting included any tools.

There were 36 basic standards which were divided into the following nine areas which formed the framework for this study:

1. The mission and objectives (of the training institution)
2. The educational programme: Methods, activities and linkage to the health care system (determining the content of the programme and further referred to as ‘content’)
3. Assessment of students
4. Students (selection, support and representation)
5. Academic staff (recruitment and development)
6. Educational resources
7. Programme evaluation
8. (University) governance and administration, (budget allocation, staff management)
9. Continuous renewal

Although most of the standards referred to the academic environment, the inclusion of "*linkage to the health system*" in the second area allowed for the inclusion of the general as well as the specialised rehabilitation environments which allowed for the application of the standards to a specific programme. In this way the standards linked with the conceptual framework in figure 1.1 and the literature is discussed accordingly. The application of the standards to a programme rather than a curriculum was approved by Professor Van Niekerk in an in-depth interview with the researcher on 01/12/2009.

1.7.2 Further models for education and training

The WFME standards were uncovered during literature search and the researcher noted that they were not referred to by educational experts at the US. The educational models that were suggested are mentioned here to demonstrate their inclusion into what the researcher considered to be a more appropriate framework for this study.

As the programme under review was part of a curriculum that needed to be accredited by the HPCSA and needed to conform to the NQF (website accessed 24/08/2007), the researcher was guided by US CTL to consider criteria for programme design as set out by the Higher Education Committee (HEQC) a statutory body of the Council of Higher Education (CHE) (HEQC, 2004). Although the HEQC criteria raised questions additional to those presented in Figure 1.1, these were covered by the WFME standards as demonstrated in appendix 6a. The HEQC criteria were limited to the academic environment and were not specific for a medical or undergraduate programme. When used to evaluate the post graduate programmes of the CRS, they were found to be inadequate for the purpose (Hugo, Mji & Gcaza, 2007). The criteria did however follow a logical sequence which assisted in the development of the methodology of this study as described in chapter 4.

Further models reviewed included the British GMC principles of good medical practice published as *Tomorrow's doctors* in 1993, updated in 2003, (GMC website accessed 24/08/2007) and *Principles of Good Medical Education and Training* (GMC website accessed 24/08/2007), which were linked to the WFME standards. The SPICES and PRISMS (Bligh, Prideaux & Parsell, 2001) models, Karle's editorial on 21st century innovations and international trends in medical education (2004) and Harden's Ten questions (Dent & Harden, 2005) provided overarching philosophies such as student

centeredness, outcome based, community and problem orientated learning which again were all contained within the WFME global standards for basic medical education.

Thus the concepts of this study originated from the researcher's direct involvement, communication with stakeholders and resultant awareness of concerns regarding the MBChB Rehabilitation programme. The concerns raised were however only a part of many that could have influenced the programme. The WFME standards provided a valuable framework that enabled the researcher to consider all areas of influence on the programme so that it could be comprehensively and holistically evaluated. The literature is thus discussed according to the standards from which indicators were drawn. As the standards were intended for application to a curriculum as a whole rather than just to a programme, this framework was adapted and built on to develop a set of indicators specific to the evaluation of the US MBChB Rehabilitation programme.

1.8 Significance of the study

The main goal of medical education is to improve health for all people (WFME, website accessed 24/082007). Persons with disabilities have been previously marginalised in SA (DoH, 2000). This study aimed to make recommendations for the improvement of the US MBChB Rehabilitation programme that would equip graduating doctors with the appropriate knowledge, skills and attitudes to manage the multiple and complex needs of persons with disabilities. Doctors with this training will be able to identify with the important role they have to play in clinical, academic and administrative rehabilitation practice and in equalising health care for all in SA.

The developed programme evaluation tool was to be reviewed at the end of the study with recommendations being made for its use as a means of ongoing monitoring and episodic evaluation of the Rehabilitation programme. In this way the programme will remain relevant in changing clinical and academic environments.

In reviewing the literature to develop tools for this study, the US appeared to be the only university in SA which uniformly offered a rehabilitation programme to all MBCHB students. The evaluated and revised programme could be a model for the development of similar programmes to be offered routinely in all MBChB curricula across the country. The indicators would serve as a standard for undergraduate rehabilitation training for medical

students in SA and the tools could be adapted for use by the individual universities for on going monitoring of their individual programmes.

Internationally, the speciality of PM&R emerged from special interest groups (Frank, 1998 American Academy of Physical Medicine and Rehabilitation (AAPMR) website accessed 20/04/2007). In SA attempts to form such groups over the last 15 years have failed. A wider exposure of undergraduate students to rehabilitation could increase the numbers of medical practitioners interested in following a career in rehabilitation (Lane, 1983; Bender & Dijkers, 1986). With a greater number of doctors interested in rehabilitation in SA, the likelihood of forming special interest groups which may ultimately lead to the development of Rehabilitation as a medical speciality in SA, would be increased.

Thus the benefits of the study were wider than the initial aim.

1.9 Study process

The process of this study as outlined in figure 1.2 is as follows:

- Chapter 2 explores the literature pertaining to programme evaluation, examples of rehabilitation and related programmes, clinical rehabilitation practice and documentation of the CRS and FHS, US.
- From the literature the development of a set of indicators, fulfilling objective 1, are presented in chapter 3.
- The methodology is explained in chapter 4, focussing on the study design, study populations and samples, and the development of instruments, covering objectives 2.
- The data is analysed and the results are used to describe the programme in chapter 5.
- Chapter 6 presents the discussion of the results (SWOT analysis of the programme according to objective 3) and conclusions regarding compliance (objective 4).
- Chapter 7 provides the recommendations of this study for improvement to the programme (objective 5) and tools for repeat evaluation and ongoing monitoring (objective 6).

The sequencing of these objectives are presented in the figure 1.2 which shows the application of the results of the study not only to evaluate the programme and make suggestions for improvement to address the problem, but also to inform the indicators and the tools.

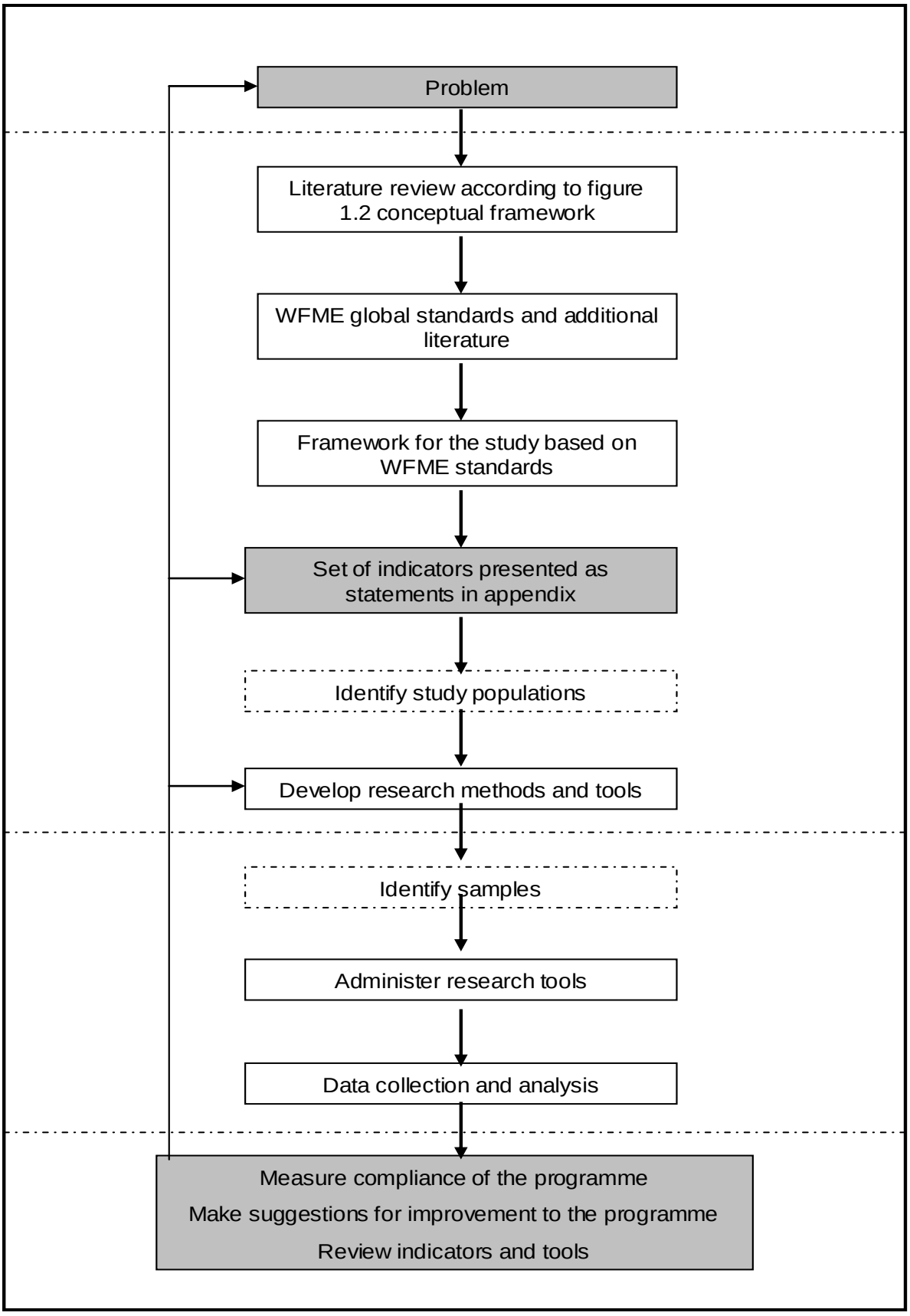


Figure 1.2: The relationship of the objectives of this study to evaluate the US MBChB Rehabilitation programme

1.10 Chapter summary

In this chapter the history of the CRS and the development of the Rehabilitation programme under evaluation have been given. The crucial role of the doctor in providing equitable health for disabled persons was explained. Although the programme in 2007 appeared to be equipping medical graduates from the US with the knowledge, skills, and attitudes to manage persons with disabilities, this perception, identified challenges, and other potential areas of influence on the programme, needed to be formally evaluated. The unavailability of a suitable evaluation tool and the need to develop one for the purpose of this study was highlighted. A conceptual framework using the WFME Global Standards for basic medical education was presented which was used to develop this required tool. The chapter concluded with the significance of, and process followed in this study.

Chapter 2
Literature Review

2.1 Introduction

The literature was explored using the three areas of influence on the programme as described in chapter 1, was expanded on and is presented here using the framework of the WFME Global Standards for basic medical education. These enriched standards formed a foundation from which a set of indicators specific for the purposes of this study were drawn as presented in chapter 3 and from which research methods and tools were developed as presented in chapter 4.

The second group of WFME standards referred to linkage to the health care system. For this study this included the philosophies of the field of disability and rehabilitation and the general clinical practice environment where persons with disabilities are treated and students are taught. The philosophies included definitions of disability and rehabilitation and models of rehabilitation practice. The clinical context included health conditions and bio psychosocial needs of persons with disabilities that doctors need to attend to, team work strategies and the continuity of care for persons with disabilities in the health system. As this added much detail to the second area of the standards, this area is discussed first after which the rest of the areas of the standards are explored.

2.2 Rehabilitation practice environment

The WFME standards strongly emphasised relevance to local teaching traditions, disease spectrums and health delivery systems as supported by Wojtczak and Schwarz, 2000 and the Institute for International Medical Education (IIME) (website accessed 05/11/2009). The IIME defined the core competencies or Global minimum essential requirements (GMER) that any physician should have regardless of where they qualify or practice. These principles draw teaching institutions into their social responsibility through support of relevant teaching platforms and producing appropriately trained graduates (Littlewood, Ypinazar, Margolis, et al, 2005).

In SA rehabilitation practices are guided by the National Rehabilitation policy which uses the WHO's 1946 definition of health as a "*complete state of complete physical, mental and social wellbeing and not just the absence of disease or infirmity*" (DoH, 2000, pp2).

Although this may be an abstract and possibly utopian definition, it did however give insight into the aspects that may influence health (Bok, 2004). Medical education is a vehicle to improve the health of all people (Van Niekerk, Christensen, Karle, et al, 2003). A disability and rehabilitation training programme would naturally emphasise that all people includes those with disabilities as per the 1996 Constitution of SA (website accessed 25/11/2007) and Disability Rights Charter of SA (Disability Rights Unit of Lawyers for Human Rights, 2000).

2.2.1 Definition of disability

The definition of disability is a challenging one. The WHO's ICF (2001) was a common feature in much of the literature pertaining to disability and rehabilitation. In this field, models such as the medical, bio psychosocial and social models were frequently compared. Exploring opinions from various sources need not create conflict, but can rather enrich understanding of the situation in which persons with disabilities find themselves.

The WHO's initial definitions of disability were contained in the International Classification of Impairments, Disabilities and Handicaps (ICIDH) which was conceptualised in 1980 (WHO, 2001). This was further refined and the ICF was published in 2001. The ICF moved away from a consequences approach and described human functioning and disability within the context of each individual's environmental and personal factors. The ICF incorporates all aspects of human health and related factors and is thus not only about people with disabilities but about all people. It is thus not only relevant to rehabilitation, but to all medical practice.

The ICF however cannot be used in isolation, but is part of a family of classifications. Medical practice revolves around diagnoses, diseases or disorders and these health conditions are described in the International Classification of Diseases, now in its tenth version (ICD-10). The ICD-10 is familiar to doctors as it is used for billing purposes in the public and private sector. These two classifications were intended, according to the WHO (2001, pp5), to provide a "*meaningful picture of health....which can be used for decision making purposes*".

This picture of health is summarised in the following figure from the ICF (WHO, 2001, pp26)

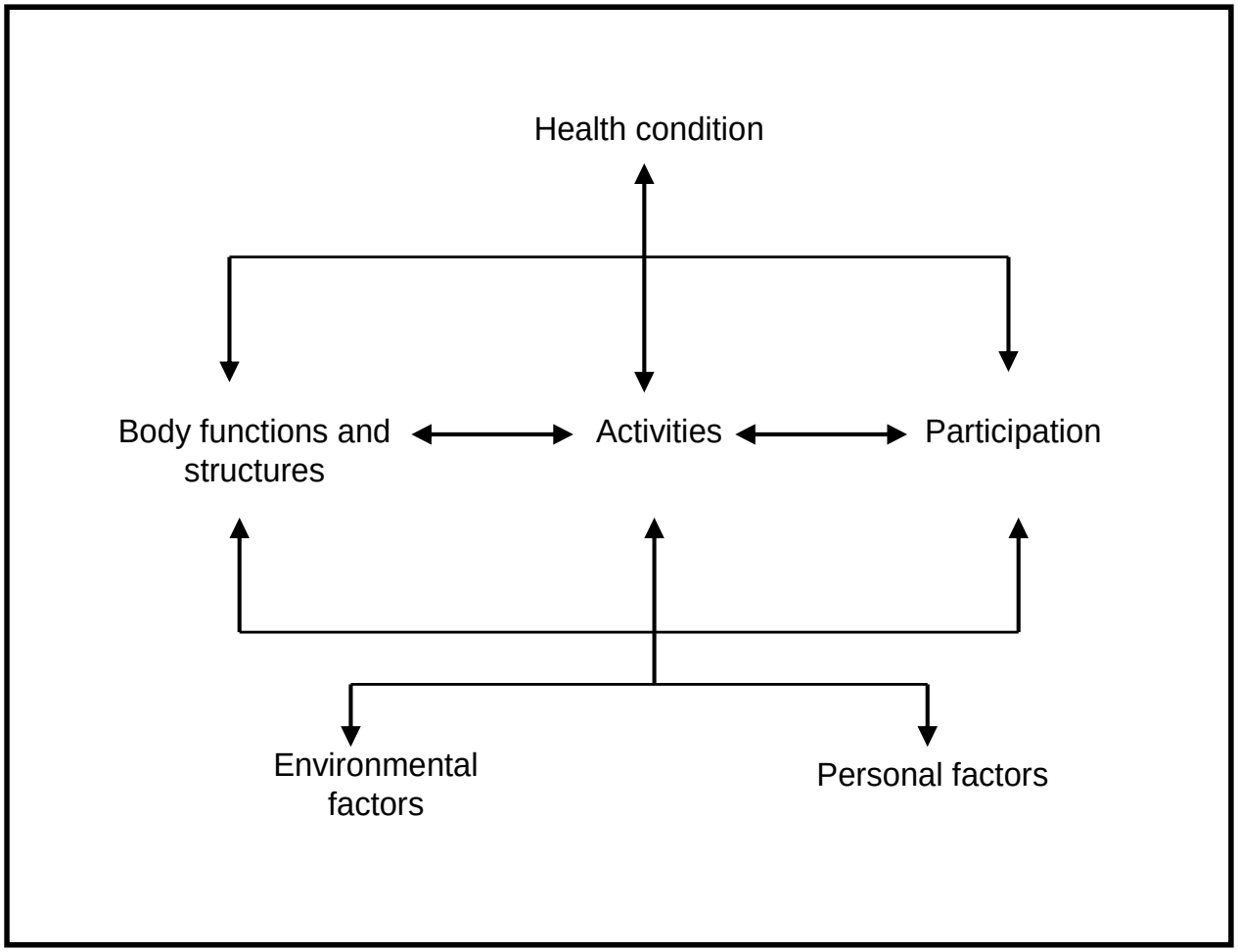


Figure 2.1: Interactions between the components of the ICF

In the above figure, the health condition is the diagnosis, disease or disorder as described in the ICD-10. Impairment is defined in the ICF as an abnormality of body structure or function, activity refers to the functioning of an individual (the ability to execute tasks or actions e.g. to mobilise or perform self care activities) and participation to the involvement in life situations (e.g. going to work or social events). Function is a global term to describe body structures and functions, activities and participation whereas disability is a global term for deficiencies in these three domains, namely impairment, activity limitation and participation restriction.

The ICF moved away from an overt causal, unidirectional or direct relationship between a health condition and disability. A state of ability or disability is the result of the various components of health. The concept of risk factors was replaced by the inclusion of environmental and personal factors which describe the context in which individuals live. Environmental factors may be physical, social or attitudinal and personal factors are

factors within the individual for example coping style, age, fitness, education, social background but which are not part of the health condition.

This lack of an overt relationship is evident when a doctor makes decisions regarding an individuals' functional capacity and awarding disability benefits. For example a patient may be functionally impaired due to the presence of a number of subtle health conditions (e.g. hypertension plus diabetes plus low grade osteoarthritis in the hands) or due to overwhelming barriers (e.g. an unaccommodating employer). It accounts for medically unexplained symptoms which as Carson, Ringbauer, Stone, et al (2000) described may well impact on function.

The bi-directional arrows in the figure indicate that health conditions do not only lead to functional impairments, but that functional or contextual factors may result in health conditions. For example, during a consultation for re-prescription of chronic medication, a contextual enquiry into social support may reveal deficiencies which may result in the development of medical complications. For example a patient who has suffered a head injury may require antiepileptic medication, but due to poor cognitive functioning needs a reminder to do so. A lack of such social support may result in poor compliance and presentation with seizures. Again the presence of an impairment may put the patient at higher risk for complications typically only seen in a disabled population (e.g. pressure sores) or an increased incidence of health conditions seen in the general population, for example a patient who has poor hand function or cognitive ability, may have sub standard oral hygiene and be at higher risk of dental or gingival disease (Dougal & Fiske, 2008).

The ICF also explains the non direct relationship between the components of health. For example having an amputation does not equal the presence of disability and, as Jones (2001) and Koch (2001) explained, is conceived in the eye of the beholder. An individual with an impairment such as an amputation may not see themselves as disabled for various reasons: if they have no pain, have access to resources such as a prosthesis, are well accommodated in society through being employed, or purely because they do not perceive themselves to be disadvantaged by their impairment as voiced by Van Brakel, a doctor with a disability in December 2007.

The ICF provides a comprehensive picture of the patient, so that for example the doctor may realise the value of identifying low haemoglobin, a broken wheelchair cushion or a

collapse in the support network of a tetraplegic which may individually or cumulatively result in the development of a pressure sore. It provides a framework for understanding disability and can be applied to all doctor-patient interactions. However it is the researcher's experience that as students rotate through individual medical specialities, each advocates a specific approach. In Family Medicine, for example, a three stage assessment is used to identify clinical (diagnosis and medical problems), individual (patient's fears, perceptions and expectations) and contextual (patient's family and environment) factors impacting on the patient's health (De Villiers, 2000). In the same way that these two frameworks have common themes, links can be drawn between the ICF and frameworks taught in the individual specialities so as to integrate rehabilitation teaching across the curriculum (Worley, Silagy, Prideaux, et al, 2000). The ICF and three stage assessment provide holistic frameworks for managing patients. This may also be termed a bio psychosocial approach.

2.2.2 Medical, social and bio psychosocial models of practice

Although this holistic approach to teaching medicine is advocated by the US as in the Profile of the Stellenbosch doctor and reported internationally (GMC website accessed 24/08/2007), the medical fraternity is perceived to function in, what is termed the medical model, which focuses on disease and cure there of. However medical model approaches are not limited to medical doctors (Block, Ricafrente-Biason, Russo, et al, 2005) and may be evident in other members of the health team. The medical model assumes the similarities between patients with the same diagnoses are more than the differences, thus standardised treatment protocols can be used.

This is in contrast to the social model which first emerged in the 1970's (Tregaskis, 2002) and saw disability as a reflection of an unaccommodating society (Byron, Cockshot, Brownet, et al, 2005). This model was initially politically driven by persons marginalised by disability and focused on the role that society has in determining the presence of disability as discussed with Watermeyer, a rehabilitation expert, in July 2007. This view was posed in opposition to the reigning medical model where disability was seen to be due to a problem within the individual. In the medical model the solution to managing disability would lie in medical interventions to remove or modify the impairment whereas the social model advocated that the solution to managing disability lies solely in the accommodation of impairment by the community (Byron, Cockshot, Brownet, et el, 2005).

These models however need not be mutually exclusive and the ICF serves to integrate both models allowing medical staff to identify their role in the overall management of the person with a disability (Fielder & Marshall 1994). In the researcher's early rehabilitation experience the term bio psychosocial model was used to incorporate both the medical and social model. The White book on Physical and Rehabilitation Medicine in Europe (Gutenbrunner, Ward & Chamberlain, 2007, pp6) claims that PM&R is "*guided by a bio psychosocial approach"* which "*adopts the ICF"*. The White book is a consensus document of PM&R specialists in Europe and concurred with opinions of PM&R specialists in the UK and North America (Tuel, Meythaler & Penrod, 1996). The White Book described the bio psychosocial model as one that considers the pathology at the level of organelles, cells, tissues and organs, through to personal functioning and family, community and societal participation and thus can be paralleled with the ICF. In addition they noted that rehabilitation is a process which "*starts with the onset of illness or injury and goes on right through to the individual achieving a role in society*" (Gutenbrunner, Ward & Chamberlain, 2007, pp7).

An understanding of these models helps doctors to deal with these differences of opinion in challenging situations for example when they are required to match subjective definitions of disability with objective and fair measurements, such as when assessing disability for the purposes of employment equity, access to social support and financial compensation (Carey & Hadler 1986; Edlund & Dahlgren, 2002; O'Fallon & Hillson, 2005). A contextual challenge to the practice of an ICF or bio psychosocial model is the reality of SA medical practice in both rehabilitation and medical settings. McKee a chief staff member at WCRC suggested in October 2009 that medically driven hospital management reinforces the ultimate accountability of the doctor, irrespective of treatment decisions made by team members. There is also a danger of stereotyping the medical profession as a whole into a medical model when well meaning practitioners are faced by the reality of limited resources (Scott 2006), medico legal accountability and when individual practitioners are of the opinion that functional and social components of health are not within their scope of practice (Paris 1993; Owoeye, Ologe & Akande 2007). These may be the attitudes of senior or older staff who have not experienced or adopted this comprehensive approach (Dowrick, May, Richardson & Bundred, 1996). Students interact with these clinicians who serve as role models, positive or negative and who influence the attitudes that these students develop over the course of their whole MBChB curriculum and not just in the rehabilitation training (Whitcomb, 2005).

Apart from their own viewpoints on health care delivery, doctors need to understand the patient's values, beliefs and expectations as to how health care should be delivered (Masasa, Irwin-Curruthers & Faure, 2005). Although patient autonomy and self directed health care is encouraged as Shapiro, Mosqueda and Botros (2003) described in patients who have lived with disability for more than ten years or who are older than 50, not all patients have this frame of reference and may expect the doctor to have the last say and be able to cure all as discussed with Watermeyer, a rehabilitation expert, in July 2007 and suggested by Scott (2006). This is of particular importance when dealing with chronic impairments where self management is crucial to the prevention of tertiary complications and further disability. The preface to the Oxford Handbook of Rehabilitation Medicine (Barnes & Ward, 2005) described rehabilitation as being different from most medical specialities in that the empowerment of the patient is central to the process and that goal setting is entirely dependent on the patient's needs with the support of family and professional teams.

Thus regarding training medical students the literature supported a balance between establishing the role of the doctor in managing the medical aspects and instilling an appreciation for the complexity of factors causing disability. Students need to be taught how to put this knowledge into practice so that they are not overwhelmed when faced with a patient who presents with bio, psycho or social concerns.

2.2.3 Health conditions and bio psycho social problems in clinical rehabilitation practice

When training students to manage patients with disability, the health conditions and bio psychosocial problems prevalent in the local population would inform the content of the programme. Establishing such a list was problematic, firstly as has been discussed the definition of disability is not easy to define. Furthermore as will be discussed in this section national health statistics report on mortality rather than morbidity (or disability) and disability has socio political implications. Being labelled disabled in SA can have its potential advantages e.g. in the context of employment equity, or disadvantages, e.g. where stigmatisation still exists. Discussion with a colleague with an amputation raised the following question: If a person is fully integrated into society, e.g. an amputee who has a well fitting prosthesis, has employment and is socially accepted are they still considered disabled? (Wainapel, 1999)

2.2.3.1 Health conditions associated with disability and rehabilitation

Clinical and academic related literature on disability and rehabilitation reported predominantly on conditions such as stroke, spinal cord injury and afflictions, amputation, head injury, multiple sclerosis, and more widely on chronic pain, cerebral palsy, arthritis and musculoskeletal disorders, with other health conditions being referred to. In SA, the National DoH requires only that notifiable diseases and deaths be registered. Notifiable diseases are predominantly infectious and are only a small part of all health conditions experienced by South Africans (Bradshaw, Groenewald, Laubsher, et al, 2003). Mortality figures do not reflect incidence of impairment (Conner & Bryer, undated accessed 24/08/2007). For example Murray & Lopez (1997) in their Global Burden of Disease study, reported that stroke is the 8th most common cause of death internationally and responsible for 2.7% of all deaths in SA (Bradshaw, Groenewald, Laubsher, et al, 2003). However this mortality reflects the 50% mortality rate in the smaller haemorrhagic stroke population (20%) versus infarcts which constitute 80% of all strokes (Lemogoum, Degaute & Bovet, 2005). Thus there are far more patients surviving stroke than those dying. Of those that survive, international figures suggested that 50% of these patients are disabled (Conner & Bryer, undated, accessed 24/08/2007). Thus the incidence of impairment following stroke is far higher than mortality figures.

Health conditions which may result in disability, such as lower limb amputation may be recorded as part of a larger health condition e.g. peripheral vascular disease (Paul, Mash & Rupesinghe, 2007). Thus prevalence regarding specific impairments may be deficient or be included with other data sets from which impairment may be implied.

When looking at the incidence and prevalence of specific conditions which are commonly associated with disability in SA, such as stroke and spinal cord injury (SCI), the literature was scanty and fragmented. As rehabilitation is not a medical speciality in SA, limited research has been conducted in this field and much of the information provided is from a few specialists (e.g. Neurologists) and other rehabilitation professionals interested in the rehabilitation of conditions related to their field of expertise (Fritz, 2005). However, these specialists are few and thus the statistical information was from isolated studies. For example Conner and Bryer (undated, accessed 24/08/2007) reported on the first stroke prevalence study done in Agincourt, Limpopo as part of the SA Stroke Prevention Initiative (SASPI) where a crude prevalence of 300/100 000 was reported with two thirds of these

needing assistance with at least one daily activity. The involvement of these specialists in the management of persons with disabilities is noted as they could be involved in undergraduate rehabilitation student training should an approach of teaching across the curriculum be adopted.

Another challenge when reviewing health condition based data was that studies may be hospital and referral based such as the 101 spinal cord injured patients that were admitted to the Acute Spinal Cord Injuries (ASCI) Unit at Groote Schuur Hospital (GSH) in Cape Town over a five year period (Friedlingsdorf & Dunn, 2007). The data could not be used to obtain an idea of the incidence of spinal cord injuries in a particular area as they are a referral centre and admissions are dependent on the availability of beds in the unit. Peer support associations such as the QASA rely on membership figures and reported the annual incidence of severe disabling traumatic spinal cord injuries to be around 500 (Njoki, Frantz & Mpofu, 2007). This was far higher than the average 20 per year admitted to the ASCI unit which serves the whole Cape Province (East, North and West) which comprised 31% of the SA population in 2001 (Lehohla, 2005).

Unpublished data available from the WCRC was subject to the same constraints. This specialist referral centre with 156 beds rehabilitates approximately 500 persons with disabilities as in-patients and manages 5000 patients on an outpatient basis per year. However, the researcher having received requests for referrals from all over the WC and beyond for services at the WCRC has observed that the majority of new onset impairments (e.g. strokes) are managed in the community, not being admitted to acute and even less likely to rehabilitation services.

From the researcher's experience in work and functional capacity evaluation, disability encompasses far more than these traditional diagnoses. Doctors at all levels of care come into contact daily with non-traditional presentations of disability such as persons with problems stemming from a variety and/or combination of specialities applying for disability grants or patients contacting the health system for the first time with undifferentiated conditions. These patients can be described and managed by applying the ICF framework.

Again from the researcher's clinical experience data from the South African Social Services Agency (SASSA) reflects those who are perceived to be disabled and will have to make contact with a doctor in order to apply for a DG or care dependency grant (for

children under 18). Again these statistics are not comprehensive as they exclude financially independent persons who may utilise private or public health resources. Also excluded are disabled adults over the age of 60 who are entitled to an old age pension. Lehohla (2005) reported a lower prevalence of disability in this age group (refer to figure 2.1) but Shapiro, Mosqueda and Botros (2003) on the other hand found a higher prevalence of disability in certain population groups within this age group so this data was also not reliable. From the researcher's contact with SASSA, children who are moderately disabled and do not require full time care and can attend special education do not receive a care dependency grant or influence SASSA statistics but are reflected in data from other sources i.e. the Department of Education.

The ICD-10 is used by private health funders in SA for billing purposes. Although it was a potential data source for the incidence of health conditions, the researcher has experienced that because it requires specific aetiological details that are not always available, that it is subject to incorrect classification.

Even if comprehensive figures were available, these figures are predicted to increase over time as the increase in success of acute care may result in reduced mortality but greater survival with residual impairment and disability. As populations age with better health care, so too does the disabled population (Tuel, Meythaler & Penrod, 1996; Crotty, Finucane & Ahern, 2000; Njoki, Frantz & Mpofu, 2007).

Reviewing the literature however provided insight into the range of health conditions which may cause disability and a possible greater prevalence of disability and dependence on carers and the health system. A training programme thus needs to include the traditional health conditions causing disability but as this list is not finite, also a bio psychosocial or ICF based or generic approach so that doctors can manage any presentation of disability.

2.2.3.2 Bio psychosocial problems occurring in persons with disability

Although GPs may be equipped to manage general medical aspects of disabilities (e.g. Diabetes and Hypertension), specific knowledge and skills are required to manage the medical needs frequently occurring in persons with disabilities. In addition patients with stroke have a higher incidence of succumbing to ischaemic heart disease than of suffering another stroke and the doctor needs to be able to manage these potential situations (Ebenbichler & Resch, 2009).

Apart from pure medical treatment such as providing prescriptions, patients see doctors as able to facilitate their further bio, psycho and social needs. These medical requirements include the need for medical information regarding medication, exercise and continence. Furthermore practical advice regarding services and support groups for patients and carers, adaptations to ease accessibility or application for financial support (Edland & Dahlgren, 2002; Carey & Hadler, 1986) are also noted by patients. Patients look to doctors to discuss fears and anxieties and to detect coping problems in the patient and carer (Bulsara & Fynn, 2006; Hare, Rogers, Lester, et al, 2006; Simpson & Tate, 2007). Importantly GPs are also seen to be advocates for availability of medications and supplies at public health care facilities and informants for the general public and employers to reduce stigmatisation.

Various international articles listed patient's perceived needs in terms of knowledge, attitudes and skills (Shapiro, Mosqueda & Botros, 2003; Gontkovsky, Russum & Stokic, 2007; Kim & Park, 2008) or what doctors perceived patient's needs to be (Kendrick, Sibbald, Burns & Freeling, 1991; Elwyn, Edwards, Gwyn & Grol, 1999). The main differences of opinion from these two standpoints was that where patients expect doctors to attend to functional and social needs, this was not always the opinion of GPs. (Mortimer, MacDonald, Martin, et al, 2004; Wachters-Kaufmann, Schuling, The & Meyboom-de Jong, 2005).

The range of knowledge, attitudes and skills required for medical practitioners to practice in specialised rehabilitation services was outlined in documents such as the White Book on Physical and Rehabilitation Medicine in Europe (Gutenbrunner, Ward & Chamberlain, 2007). The ICF (WHO, 2001) and further literature complimented these contents for an undergraduate rehabilitation training programme. As the opinion of patients and GPs in the literature challenged the priorities in this list, this aspect required further validation in this study.

2.2.3.3 Social aspects of disability

When looking at the social perspective of disability, the development of rehabilitation as a special interest was considered. Internationally epidemiological factors such as World Wars I and II, war in Iran and the Polio epidemic increased the incidence and prevalence of disability and thus the awareness thereof and the need for rehabilitation (AAPMR

website, accessed 20/04/2007; University of Pennsylvania website, accessed 20/04/2007; Raissi, Vahdatpour, Ashraf & Mansouri, 2006). In SA the social aspects of rehabilitation only started to receive attention with post 1994 constitutional reform, the emergence of human rights and the equalisation of opportunities for previously disadvantaged groups which included the disabled (DoH, 2000; Unit of lawyers for Human Rights, 2000). The SA population census report on disability in 2001 (Lehohla, 2005) aimed to establish social and economic data in order to measure the impact of programmes which had been designed to address these inequalities.

Where gender and race issues have been overtly addressed following the new SA constitution (1996 website accessed 25/11/2007), disabled persons are still marginalised through lack of access to resources such as education, employment, and health due to attitudes towards the abilities of those with disabilities (Lehohla, 2005). This is in part due to disability being considered a social and health issue rather than being incorporated into all aspects of governmental legislation (Office of the Deputy President, 1997). In the WC, health services for the disabled have received attention as rehabilitation has been grouped with national priorities such as Human Immunodeficiency Virus/Acquired Immune deficiency Syndrome (HIV/AIDS) and Tuberculosis (TB).

The 2001 population census reported a disability prevalence of 5% (Lehohla, 2005). Guthrie (2001) quotes international figures of 10-12%. Guthrie attributed the low SA figure due to a lack of inclusion of certain residential facilities in the census. The prevalence may well have been higher as disability is generally perceived as a negative stigma in SA and the census relied on self reporting. Guthrie's (2001) opinion was that global figures are reliably applicable to SA. The 2001 census acknowledged that disability is difficult to define, the definition of disability used being the lack of "*full participation in life activities*" (Lehohla, 2005, pp8), which was in line with the ICF. This figure also did not indicate the need of persons with disabilities to make contact with the health system which was documented as higher than that of the able bodied population (Memel, 1996; van Schrojenstein Lantman-De Valk, Metsemakers, Haveman & Crebolder, 2000; Aulagnier, Vergner, Ravaud, et al, 2005). These factors suggested that the burden of disability on the health system is thus greater that the reported prevalence.

Memel (1996) reaffirmed that disability is difficult to define and noted that the prevalence of physical disability varied between practices in the UK, ranging from 6 to 11 % where the

local estimate of disability was 5%. In SA, Gauteng had the lowest prevalence at 3.8%, the Free State the highest at 6.8% with Kwazulu Natal having the most disabled persons (470 588 persons) in absolute numbers. Although the WC was recorded with the second to lowest disability prevalence of 4.1%, the second to highest prevalence in the Eastern Cape (EC) of 5.8% (along with Northwest and Mapumalanga) was relevant as the researcher has observed frequent migration of workers from the EC to the WC. These workers often return to their families in the EC after becoming disabled and are so reflected in the census. However, the acute and initial rehabilitative interventions may well have been the responsibility of the WC where the disabling event occurred. Thus the incidence of disability in the WC could well have been higher than reflected by the relatively lower prevalence rate reported. Clinically, on discharge to the home province, systems need to be put into place over long distance to ensure maintenance of achieved rehabilitation outcomes.

The 2001 census categorised the following types of disabilities (table 2.1) for the purposes of service delivery, education, social security and employment equity. Health services are delivered to persons with disabilities according to these categories. For example emotional and intellectual disability may be dealt with by psychiatrists, sight by ophthalmologists, etc.

Table 2.1: Prevalence of types of disabilities according to the 2001 SA population census

Type of disability	Prevalence of a particular disability (%)	Number of affected individuals
Sight	32	721 914
Physical	30	676 794
Hearing	20	451 196
Emotional	16	360 957
Intellectual	12	270 717
Communication	7	157 918

Of the 2 255 982 disabled persons in SA in 2001, some individuals may have more than one disability and would be represented more than once in the above table.

Although age categories were given as shown in figure 2.2, the census did not specifically define paediatric, adult and geriatric populations according to health delivery services. In SA as in the UK rehabilitation services for children are generally provided by paediatric

services (Frank, 1998) but the aged are included with adult rehabilitation due to paucity of geriatric services. However the delivery of comprehensive rehabilitation is dependent on the collaboration of all state departments e.g. disabled children may receive rehabilitation services when they go to a specialised school which falls under the Department of Education and the Department of Transport is involved in organising accessibility through specialised transport services.

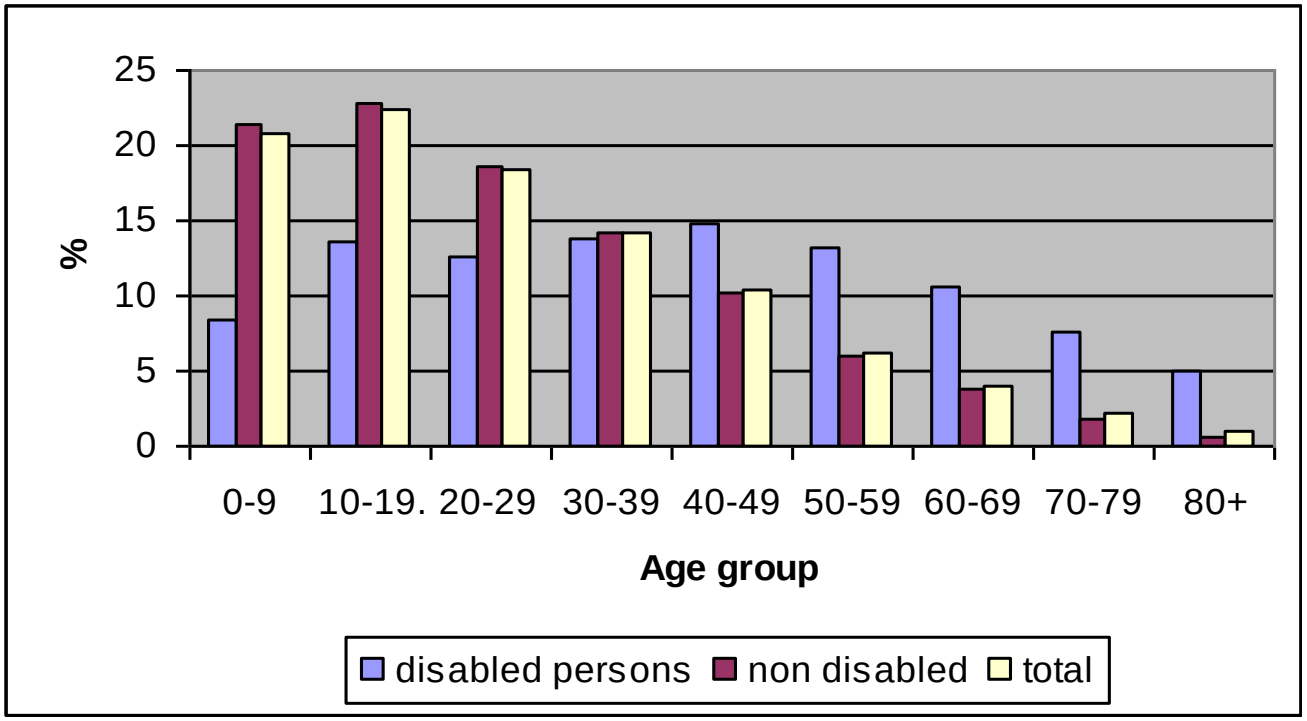


Figure 2.2: Percentage distribution of disabled persons, non-disabled persons as well as total population by age group, according to the 2001 SA population census

The SA census showed that 60% of the total population was between the ages of 0 and 29, but disability was highest in the 40-49 year age group with a close spread over the 10-59 year age group which has important economic implications (figure 2.2). This was in contrast to developed countries where the aged contributed largely to the disabled population (Kahtan, Inman, Haines & Holland, 1994). In these countries it was reported that at least 50% of people over the age of 75 experienced disability. The census did not provide comparative data but the shorter life expectancy of persons with disabilities in SA was evident in that only 5.1% of the disabled population was over 80 years of age and 12.8% of the general population were aged 70 and older.

The purpose of the census was to evaluate the impact of developmental programmes on socio-economic variables. Lehohla (2005) reported that disabled individuals were more

likely to have poor education and poor access to basic resources including health care. Lower employment rates as tabled below further aggravates poverty.

Table 2.2: Presence of socioeconomic factors in the disabled and general population according to the 2001 SA population census. (Figures represent the percentage of the population sample indicated living with a particular socioeconomic factor)

	Disabled population	General population	WC disabled population
No education	30	13	Not reported
Living in a brick house	53	56	Not reported
Access to piped water	78	85	Not reported
Available electricity	62	Not reported	Not reported
Employed	19	35	25

Thus an impoverished individual with an acute illness is more likely to have inadequate medical treatment and rehabilitation and thus become disabled. Once disabled, inequalities in employment and education aggravate this poverty and further restrict access to basic resources such as housing, water and electricity. Lower educational levels can influence the capacity of an individual to manage their own or a family member's disability increasing the risk of developing tertiary complications such as pressure sores, infection, or depression which will further perpetuate the disability (Amosun, Mutimura & Frantz, 2005).

In summary, disability was difficult to define in terms of population statistics (Amosun, Volmink & Rosin, 2005). Data regarding specific impairments was scanty and fragmented. It was the researcher's experience that doctors come into contact with persons with various presentations of disabilities on a regular basis at all levels of health care. Doctors need to have an understanding of the conditions commonly causing disability and the socio-economic factors that impact positively or negatively on disability. With an awareness of the incidence and prevalence of disability in their practice environment and equipped with a generic approach doctors need to be able to manage any condition, as well as the multiple and complex medical, functional and social aspects associated with disability.

2.2.4 Rehabilitation

The ICF and bio psychosocial model describe the medical, functional and social aspects of disability. Management of these aspects includes medical and surgical interventions to address the health condition, secondary and tertiary complications or impairments, therapeutic techniques and provision of assistive devices to compensate for impairment, and social acceptance, equalisation of opportunities and alteration of the environment to facilitate social integration (Office of the Deputy President, 1997; Wade, 1998a; Wade, 1998b; Wade, 1998c; Wade, 1998d; Office of the Premier of the Western Cape, 2002). These actions are referred to as rehabilitation and are intended to enable "*an impaired person to reach an optimum level of physical, mental and/or social function*" (DoH, 2000, pp31).

The White book on Physical and Rehabilitation Medicine in Europe (Gutenbrunner, Ward & Chamberlain, 2007) as well as Wade and de Jong (2000) further suggested that in practicing and teaching rehabilitation, a generic approach should be adopted. Piachaud (2002) echoed the researcher's experience that as disability can be due to a multitude of health conditions, as treated by a range of medical specialists, a generic approach that is taught across the curriculum is more appropriate than teaching rehabilitation in isolated modules (Bloch, Blake & Fiedler, 1996; Karle, 2004). Ebenbichler and Resch (2009) wrote that patients with multiple pathologies are better managed from a global than a speciality perspective.

An MBChB curriculum trains doctors to master medical and surgical interventions to manage patients. As disability may arise out of any health condition which may be linked to any speciality, rehabilitation draws on knowledge and skills imbedded in many specialities. These need to be applied within the broader context of disability as explained by the ICF. Doctors experienced in the field of disability and rehabilitation may be able to effect management themselves or in the case of GPs and doctors working in other specialty directions, appropriate referrals need to be made to the relevant medical specialists to effect further medical management and to rehabilitation professionals to deal with functional and social aspects (Rubenstein, Calkins, Young, et al, 1989). The researcher was of the opinion and as supported by Piachaud (2002), that students trained in such an approach will be able to manage any diagnosis and not only traditional conditions which may have been taught such as stroke, amputation, head injury and spinal cord affliction.

Although this role of the doctor in disability and rehabilitation as described in the White Book on Physical and Rehabilitation Medicine (Gutenbrunner, Ward & Chamberlain, 2007) referred to the role of recognised PM&R specialists internationally, from the researcher's clinical experience, these documents mirrored the knowledge, skills and attitudes of career medical officers working in the field of Rehabilitation in SA where it is not a registered speciality. Such literature provided a guide to the range of knowledge, skills and attitudes required by any doctor when involved in disability and rehabilitation.

A generic approach enables the doctor to comprehensively address not only the potentially multiple facets (medical, functional and social) impacting on a patient's wellbeing but also to put systems into place to prevent the development of complications in all these areas (Ebenbichler & Resch, 2009). Patients with chronic conditions can succumb to insidious complications which may result in further disability or burden on the health system. As no one individual can comprehensively address all these needs of a person with a disability, experts in the various disciplines need to be involved, calling for co-ordinated teamwork (Long, Kneafsey & Ryan, 2003).

2.2.5 Teamwork

Teamwork is integral to rehabilitation practice, but can take many forms and has various challenges. These need to be acknowledged by clinicians, especially those imparting this principle to undergraduate medical students. Teamwork is also an important educational principle and the logistics of its inclusion into the undergraduate rehabilitation programme needed to be evaluated in this study as discussed in this section.

2.2.5.1 Teamwork as a rehabilitation principle

Teamwork is considered to be a cornerstone of rehabilitation practice (Gutenbrunner, Ward & Chamberlain, 2007) but its use has been documented in clinical practice since 1976 in specialities such as oncology, geriatrics and orthopaedics when faced with the complexities of patient care (Hall & Weaver, 2001). Teamwork is not limited to disciplines such as physio, speech and occupational therapy, social work and clinical psychology but should also involve nursing and medical staff from the relevant specialities (Ward, 1992). Frank (1998) suggested team work may even extend beyond health care providers involving Departments such as Housing, Transport and Education.

To complete the picture it must be noted that the patient and their family are central to a bio psychosocial and thus a team approach (Nijhuis, Reinders-Messelink, de Blécourt, et al 2006; Street, Eaton, Clarke, et al 2007). Early buy in from the patient and family facilitates long term compliance and maintenance of outcomes achieved. Doctor-patient relationships and communication are thus further core skills required of a medical curriculum.

In an acute medical setting multidisciplinary team work occurs. In this environment referral to and individual assessment by therapists and social workers with individual goal setting occurs. The doctor considers the inputs of the various team members but is ultimately responsible for the well being of the patient (Gibbon, 1999; Long, Kneafsey & Ryan, 2003; Choi & Pak, 2006).

In the ideal rehabilitation setting a full interdisciplinary team of relevant disciplines attends to the medical (doctors, nurses), functional (therapists) and social (social worker, clinical psychologist) aspects of disability through parallel assessments and combined goal setting (Long, Kneafsey & Ryan, 2003; Choi & Pak, 2006). True to the social model, the team shares a common goal (Gibbon, 1999) and collectively takes responsibility for the rehabilitation outcome of the patient. However in SA where rehabilitation is not a recognised speciality, rehabilitation facilities are few and far between and in the WC most health facilities which offer rehabilitative services do so without the inclusion of doctors in these teams. With the CSP the aim was to treat 80% of all patients at primary health care by 2010. These factors culminated in the fact that most doctors in the WC encounter disability while working as independent practitioners in a primary health care setting. It was thus reasoned that in order for them to effect a rehabilitation programme they need to be able to identify the medical, functional and social issues relevant to the person with the disability and to manage them directly or indirectly through appropriate referral to members of the multidisciplinary team.

However not all areas of the WC or SA, rural or metropolitan, have access to adequately trained rehabilitation professionals. Thus doctors (and nursing staff) who form the primary interface of the patient's contact with the health system, either at initial entry or with ongoing maintenance, may be required to work in a transdisciplinary manner. In this approach, they may be expected to draw on skills traditionally peculiar to other disciplines. This requires knowledge, skills and a supportive attitude which can evolve from a healthy

understanding of the role of the therapeutic disciplines, such as can be learnt in an interdisciplinary setting.

Little information was available regarding transdisciplinary approaches (Shaw, Walker & Hoque, 2008) although it has been described by physiotherapists (McPherson & Reid, 2007). The terms multi, inter and transdisciplinary were often used interchangeably (Vyt, 2006: Christie, Smit & Bednarzyk, 2008) but as explained by Choi and Pak in their three consecutive reviews (2006, 2007, 2008), transdisciplinarity integrates all aspects of human care extending beyond the boundaries of one particular discipline. Undergraduate interdisciplinary exposure in a rehabilitation programme should thus contribute to developing future doctors' competence to fulfil these transdisciplinary roles.

From the researcher's observation and according to Choi and Pak (2006, 2007, 2008), this approach needs to be clarified, for the benefit of doctors and therapists, that in teaching a transdiciplinary approach, the intention is not to teach medical students specific therapeutic techniques imbedded in the various disciplines but rather to empower the future doctor with knowledge and skills to be able to practically advise the person with a disability in all spheres of bio, psycho and social functioning. For example a doctor who can advise a patient regarding positioning of a hemi-paretic arm at the time of onset of a stroke so as to prevent the development of contractures or shoulder sub-luxation and to promote sensory stimulation could initiate far reaching benefits while the patient is awaiting an appointment with a therapist. Doctors can be taught not only to effect positive interventions but can advise patients against deleterious behaviour such as preventing a patient with increased tone from squeezing a stress ball.

A rehabilitation doctor has insight not only into the problems and complications of persons with disabilities from a bio psychosocial perspective, but also a doctor who can effect treatment principles in all these spheres through direct and indirect (via referral) means. This approach is not viewed to be traditionally medical, further influencing the recognition of rehabilitation as a speciality by major medical specialists (e.g. Physicians, Surgeons) (Greenwood, 2001; Ward, 2001; McLellan, 2002; University of Pennsylvania website accessed 20/04/2007). In the US MBChB Rehabilitation programme, heavy reliance is made on Family Physicians as facilitators of rehabilitation learning. This has lead to a realisation that GPs are in an ideal position not only to effect rehabilitation principles but to apply this transdisciplinary approach. In a way Family Physicians themselves affect a trans

speciality approach across the better recognised specialities in medicine. They too, although now a registered speciality as of 2007, are still poorly recognised by other medical specialities.

Although team work has been shown to improve patient outcomes with planning of interventions resulting in optimal use of resources, reduce health costs due to reduction in service duplication, and improved job satisfaction of team members, it is also fraught with complexities such as interpersonal conflict and poor communication which can compromise patient care (Gibbon, 1999; Hall & Weaver, 2001; Mattick & Bligh, 2006). Hall and Weaver (2001) proposed further that the difference in the educational training of doctors, therapists, nurses and social workers may account for this. Differences were even evident amongst the different therapists: physio, occupational and speech therapists. Because each discipline has a different focus of expertise, each discipline values different aspects of patient treatment. Gibbon (1999) suggested that although disciplines are uniquely different, there are areas of overlap which can also lead to conflict. Within teams roles and functions need to be clarified to avoid potential threat to professional identities. Team members and thus medical students need to be exposed to the unique yet overlapping roles that each discipline brings to the management of the patient so that they can develop respect for each other as professionals and individuals.

The team despite these shared responsibilities and equal status of its members also needs to demonstrate accountability and as with any team, requires leadership. Team leaders facilitate growth and development of the team and from the researcher's experience at the CRS and WCRC which was based on work by Landrum, Schmidt and McClean (1995) a case co-ordinator serves as the primary contact team member between individual patients, their families and the team. In the international arena PM&R specialists are automatically considered as leaders of the team, which is not the practice at the WCRC. Doctors as automatic leaders of teams have been perceived as medical model or autocratic. However in the SA situation where doctors take final accountability for the outcome of the patient, it may well be warranted for the doctor to assume the position of team leader as discussed with McKee, a chief staff member at WCRC in October 2009.

Team functioning is also influenced by an individual team members' knowledge of clinical rehabilitation practice or experience in interdisciplinary team work. However this contribution to team functioning is influenced by the individual's personality (Ponzer, Hylin,

Kussofsky, et al, 2004). This understanding of interpersonal skills and professional attitudes are known as soft skills (Schurink, Krüger, Bergh, et al, 2006) and needs to be taught to medical students alongside knowledge and skills. Functional interdisciplinary teams can provide an ideal learning environment for medical students to develop positive attitudes and relevant knowledge regarding other disciplines.

2.2.5.2 Teaching teamwork to students

Exposure to functional interdisciplinary teams and appropriate role models provides ideal learning opportunities to understand these dynamics and allows for personal growth as students learn their own roles within these dynamics. A better understanding and tolerance of individuals and their discipline's values results in positive attitudes towards interdisciplinary care. Students of US in their Family Medicine rotation during their final MBChB year (Mash & De Villiers, 1999) valued this aspect of their training and rated team exposure as the third most relevant and useful activity out of nine items.

Integrated teaching for all professionals involved in rehabilitation in a classroom setting as suggested by O'Brien, Bone, Zack and Solomon (2008) for a HIV training programme and Ghosh and Pandya (2008) for a neurosciences programme, and as has been happening in the US MBChB first year clinical sciences module and in the late phase rehabilitation rotation, provides opportunities for professional socialisation that help to bridge the divides between team professionals (Mitchell, McCrorie & Sedgewick, 2004). In addition these students socialise informally on and off campus and may even share student accommodation as Van Brakel, a doctor with a disability, shared with the researcher in December 2007. In the same way inclusion of students with disabilities into the various student bodies of a medical school can positively influence attitudes towards persons with disabilities (Mercer, 1998) as will be further discussed under the area of student selection of the WFME standards.

The literature proposed differing opinions as to the timing of interdisciplinary learning exposures. A number of authors used the Readiness for Inter Professional Learning Scale (RIPLS) published by Parsell and Bligh in 1999 (McFadyen, Webster & Maclaren, 2006). It measures 19 statements of attitudes regarding teamwork skills and interpersonal relationships, negative and positive views on professional identity, roles and responsibilities of various team members (Horsburgh, Lamdin & Williamson, 2001; Mattick & Bligh, 2006; El-Zubeir, Rizk & Al-Khalil, 2006). On the one hand, if students are exposed

to interdisciplinary teamwork early in their curriculum there is a greater likelihood that they will develop a positive attitude to such a philosophy. However in order to benefit from such an exposure and not succumb to the negative aspects of team work the student needs a degree of emotional maturity and professional self confidence (Hall and Weaver, 2001; Hylin, Kussofsky, Lauffs, et al, 2004) which is usually only achieved later on in their student years. Students must be adequately prepared (McFadyen, Webster & Maclaren, 2006) and sessions need to be facilitated giving students an opportunity to discuss their experiences so that the positive value of interdisciplinary collaboration can be left with the students.

Hammick, Freeth, Koppel, et al (2007) in their systematic review of almost 900 papers on interdisciplinary learning affirmed that repeat interdisciplinary learning opportunities should be provided throughout the curriculum and that this should be an ethos that underpins the whole curriculum. They highlighted that staff also need to be adequately trained and prepared to deliver such a programme. Curran, Sharpe and Forristall (2007) reflected that buy in from faculty staff and management supports undergraduate interdisciplinary teaching initiatives. From these articles on interdisciplinary learning there was however no example of interdisciplinary activities as part of rehabilitation training programmes documented.

Isolated interdisciplinary learning experiences were however described by rehabilitation and other departments. In Sweden, for example, a training ward had been created for all disciplines (Wahlström, Sandén & Hammar, 1997; Ponzer, Hylin, Kusoffsky, et al, 2004). Goals for the learning exposure, such as sharing responsibility for patient health, identifying and dealing with challenges to interdisciplinary functioning, the role of communication and patient responsibility, were set. Harward, Tresolini and Davis (2006) and Lumague, Morgan, Mak, et al (2006) suggested additional goals such as breaking down stereotyping, respect for other disciplines, awareness of ones own contribution to inter-professional collaboration and role in appropriate referrals. Activities described were case discussions and community visits (Street, Eaton, Clarke, et al, 2007).

Gibbon (1999) and El-Zubier, Rizk and Khalil (2006) noted that medical students needed to see medical doctors as part of functioning teams. Unfortunately in the Swedish example, despite access to a costly training ward, medical representation amongst the teaching staff was lacking. This was attributed to time constraints and attitudes of medical

staff. Further logistical challenges to providing inter disciplinary learning opportunities reported related to finances, space, student numbers, co-ordination between disciplines, interdisciplinary differences in objectives and learning strategies and faculty support (Curan, Sharpe & Forristall, 2007).

Teamwork and the role of the doctor therein was thus recognised as a complex issue. The principles however mentioned need to be incorporated into a rehabilitation training programme and thus into the evaluation of such a programme.

2.2.6 Clinical rehabilitation services

Clinical learning opportunities are provided by the prevailing health system. The staff and patients at these clinical sites are important teaching resources as will be discussed according to the WFME standards. However the dynamics of the services available to persons with disabilities within the continuity of care provides the context in which the programme is delivered.

2.2.6.1 The continuum of care in managing disability

The ICF, bio psychosocial model and a generic approach to rehabilitation underpinning all contacts between an individual and the health care system, results in doctors being involved in rehabilitation interventions along the continuum of care from primary prevention, through to acute management and prevention of secondary complications, through to return of the patient to the community, maintenance and the prevention of tertiary complications. Cope and Sundance (1995) described six outcome levels which put disability and rehabilitation into perspective in this continuum of care. In rehabilitation circles, these are termed ‘Landrum’s Outcome Levels’ as contained in the book by the same editor. The levels describe the progress of a patient following an acute illness or injury, when primary prevention has failed, through discharge, through to their full reintegration into domestic, community, and productive activities as summarised below:

Table 2.3: Outcome levels and their description according to Cope and Sundance in Landrum, Schmidt and McClean (1995)

Outcome level	Definition	Description
0	Physiological instability	At this level the patient is acutely ill and the medical condition is yet to be managed. Patients are initially treated by primary general health services and referred to secondary or tertiary specialist medical services as required. The same avenue is followed should the patient develop a tertiary complication.
1	Physiological stability	The patient has been medically and surgically stabilised and can be discharged from acute care. The patient is totally dependent in all aspects of self care and mobility (activities of daily living (ADLs)) Patients are referred to either residential or community based specialised rehabilitation facilities or may well be managed by primary general health services. Family and patient education is crucial at this stage to prevent decline after discharge.
2	Physiological Maintenance/ Basic Rehabilitation	At this stage there is a moderate proficiency in ADLs. Plans need to be put into place to prevent secondary complications.
3	Home or residential rehabilitation/Intermediate rehabilitation outcome	The patient is safe, independent in communication, ADLs and mobility, or the patient can direct management in the environment where they will be long term. If the patient had been thus far managed by specialised residential or community rehabilitation services the patient may be transferred to primary health care services at this stage for maintenance if no further improvement is expected or even for further rehabilitation interventions especially if specialised rehabilitation resources are limited.
4	Community re-integration/ Advanced rehabilitation outcome	Systems have been put into place so that the patient has the ability and/or resources to take part in community activities such as shopping, socialisation, religious activities
5	Productive activity	Productive activities such as schooling, occupation, or performing activities for the benefits of others can be performed

The levels are not necessarily clearly demarcated and a patient with a less severe or temporary impairment may move through the levels and return to pre-morbid functioning

with minimal intervention, whereas those with permanent or chronic (e.g. cognitive) impairment may never progress to level 5. The levels can be used as a clinical management and monitoring tool as is done at WCRC. At each particular level the clinician is guided as to what aspects of the ICF are priorities. In this way the biological (health condition, impairment, activities and function), psychological and social aspects including community reintegration are addressed. When a patient is reassessed, the level of functioning can be compared to previous levels providing an objective view of the impact of the management plan put into place.

As the outcome is dependant on the patient factor, clinicians can make appropriate suggestions for intervention in order for the patient to progress to the next level or to maintain the current level. It is acknowledged that doctors (as well as other rehabilitation professionals) need to be able to empower patients to be part of the rehabilitation plan from as early as is possible even while the acute condition is being stabilised, to avoid them adopting the sick role (Wade & Halligan, 2007). In addition maintenance is considered to be the responsibility of the patient within a supportive health system e.g. compliance with medication, therapeutic home programme or attending follow up appointments. However, even fully informed patients may choose not to comply with suggested interventions. This creates ethical dilemmas as these patients, if they develop complications, may be further impaired, falling to a lower outcome level and creating additional burden on carers and the health system. Patients apart from their rights, then have a responsibility as part of the team to devise creative strategies to prevent such deterioration. At the WCRC the researcher has experienced the outcome levels as a framework for planning appropriate interventions encompassing medical, functional, and social, current and potential aspects as advocated by the ICF to ensure cost-effective, patient centred management to achieve higher or maintain current levels of function.

As a measurement tool, it measures the outcome of the interventions performed together with how they are accepted and put into practice by the patient in their residential environment. From experience at the WCRC it has been found to truly measure disability rather than its components. Other tools used by rehabilitation facilities measure either the impairment itself (e.g. Oxford scale of muscle strength) or activity limitation (e.g. Functional Independence Measure, National Institute of Health Stroke Score, Bartell index, American Spinal Injury Association guidelines). Doctors need to understand the importance of not only measuring the degree of impairment but also monitor and objectively evaluate the

impact of their interventions on prevention or reduction of disability. It was thus considered appropriate to teach students the value and application of measures such as these outcome levels.

As a patient moves through the various outcome levels they will be managed by the different available health services. Howe, Campion, Searle and Smith (2004) described how patients with chronic disease were tracked as their problems unfolded over time and encountered different specialities. These services can be accessed at generalised primary or specialised secondary and tertiary level. Specialised services include all major (paediatrics, obstetrics and gynaecology, internal medicine and surgery) and minor (e.g. ophthalmology, rheumatology) specialities. In the UK and North America specialised rehabilitation services are a recognised speciality and although limited, attached to acute medical services. In SA, rehabilitation is not a recognised speciality, public and private rehabilitation services are limited and generally operate independent of acute facilities.

2.2.6.2 Specialised and dedicated rehabilitation health care services in the WC and the role of the doctor in these services

DoH facilities known to the researcher in 2008, at the time of literature review, included the WCRC, Bishop Lavis ambulatory service and the Elangeni rehabilitation service in Paarl with features as tabled below. The researcher was aware that Worcester Hospital, although not an official rehabilitation facility, has dedicated six beds in their Family Medicine ward, accommodated in Brewelskloof Hospital, for post-acute management of patients with recent onset impairment.

Table 2.4: Rehabilitation services available at WC DoH facilities (+ = available; - = not available)

	WCRC	Bishop Lavis	Elangeni	Worcester
In patients	256 beds	-	-	6
Outpatients	+	+	+	-
Location	Metropole, Lentegeur	Metropole, Bishop Lavis	Winelands, Paarl	Overberg, Worcester
Clinicians: Dr	+	-	-	+
Nurse	+	-	-	+
Physiotherapist	+	+	+	+
Occupational Therapist	+	+	+	+
Speech Therapist	+	+	+	+
Social Worker	+	-	-	+
Clinical Psychologist	+	-	-	-
Dietician	+	-	-	+
Interdisciplinary discussions	+	+	+	+

As indicated in the table above, posts for therapists are available at all these sites. Doctors experienced in the management of disability are available at the WCRC and Family Physicians at the Worcester site with the researcher providing rehabilitation input.

The researcher was aware from clinical experience that the UCT private academic hospital offered inpatient interdisciplinary programmes, with a rehabilitation doctor on their team. This facility has since closed and Life Rehabilitation opened in 2011 with the similar functioning. At least two private therapy groups co-ordinate physio, occupational, speech therapy and/or clinical psychology treatments, with referral to the local GP for medical management.

The researcher has experienced that these specialised rehabilitation facilities rehabilitate patients following onset of impairment to various outcome levels. Rehabilitation programmes may continue until maximum potential is achieved (e.g. outcome level 5 if the patient is to return to work or school), a plateau in function is reached or when the patient is able to return to their residential environment with continuation of rehabilitation in the community. In-patient programmes are provided for those who cannot access community rehabilitation services or need more intensive programmes (Gregory & Han, 2009). Although the benefits of these specialised rehabilitation facilities are recognised (Gregory

& Han, 2009; Geurtsen, Van Heugten, Martina & Geurts, 2010), Langhorne, Taylor, Murray, et al (2005) in their met analysis of 11 studies from Australia, North America, Europe and Thailand showed that early discharge of stroke patients to community rehabilitation teams had better short and long term functional outcomes and were more cost effective than management in an inpatient stroke unit or rehabilitation centre. Community therapists have the advantage of being closer to the patients discharge environment and thus are more aware of the contextual factors that will impact on the patient's outcome (Wottrich, von Koch & Tham, 2007).

In order to provide more cost effective rehabilitation services, the WC Service Plan for Rehabilitation and Disability Management Services (Hendry & Pegam, 2006) proposed a framework for seamless management of persons with disabilities from tertiary through to primary level, which relates to Cope and Sundance's outcome levels (1995), with the establishment of community based interdisciplinary rehabilitation teams. Unfortunately, this plan did not make provision for the incorporation of medical practitioners into these teams, potentially denying the person with a disability access to comprehensive care. The lack of incorporation of doctors into these teams refutes the medical component of a bio psychosocial approach and highlights the researchers concerns of a pure social model approach and the lack of recognition of medical rehabilitation specialisation. This plan, although adopted, has not yet been fully affected.

The handful of doctors interested in disability and rehabilitation and working in these specialised or dedicated facilities include medical officers with a few specialists (Neurologists, Urologists, and Orthopaedic surgeons) who have an understanding of the principles of rehabilitation. Much of the medical treatment that these medical officers deliver is embedded in these various specialities. The essence is being able to draw on this knowledge from the various specialities and to be able to apply the knowledge and skills with an attitude encompassing the bio psychosocial approach (Ebenbichler & Resch, 2009). On informal discussion with rehabilitation doctors in SA, they agreed that they share the same philosophies and general roles as PM&R specialists internationally although specific functions may differ between rehabilitation facilities.

2.2.6.3 The clinical training platform for a rehabilitation programme

One of the educational methods by which students learn is from student-patient interaction. Any of the afore-mentioned specialised or generalised clinical sites are thus

potential teaching sites for disability and rehabilitation. As rehabilitation is relevant to many specialities including general practice, teaching at as many clinical sites as possible allows for integration of teaching across the curriculum and not only in specialised rehabilitation modules (Bloch, Blake & Fiedler, 1996; Karle, 2004).

When universities consider specialised versus generalised facilities, specialised services are often the first choice of teaching sites as it can be expected to find a large number of suitable cases from which to teach (Gledhill, 1987). However in the WC patients with disabilities with conditions that are often chronic and susceptible to complications, are largely managed at primary health care (Mash & De Villiers, 1999; Kristina, Majoor & Van Der Vleuten, 2004).

Murray, Todd and Model (1997) described how, in the UK, Family Physicians have been drawn into undergraduate teaching programmes. Primary health care is known to deal with undifferentiated cases as it is the patient's first interface with the health system when faced with an emerging health problem. This health condition may at a later stage be identified and aligned with a body system or speciality, or as described by Carson, Ringbauer, Stone, et al (2000) and the ICF, may remain medically unexplained. In this context primary health care practitioners become facilitators of teaching for the various specialities including rehabilitation, rather than content experts. From observing the GPs involved in the Rehabilitation programme at US, who have with training and time developed content expertise which has enhanced their clinical service to persons with disabilities, they may be considered role models for students in managing and advocating for persons with disabilities in the community. Although such community based teaching is considered to be a modern educational principle, it was reported that students who receive a greater part of their training in a tertiary hospital environment, find these community orientated specialities to be less important (Ward, 1992; Jones & Helbren, 2007).

When universities consider placement at public or private services, the researcher has observed that public health facilities are primarily considered especially where university and health departments have shared service level agreements and capacity to absorb possible cost implications of accommodating student placements. However private practitioners indicated that being involved with student placements can be rewarding despite the time and cost implications (Vinson, Paden, Devera-Sales, et al 1997; Worley, Silagy, Prideaux, et al 2000) as will be discussed under 2.3.5.

As students may eventually practice in any one of these environments, public or private, generalised or specialised, the researcher considered it to be ideal that they are exposed to disability management in all these settings.

2.3 Educational principles

The following section discusses the literature pertaining to educational principles arranged according to the nine areas of the WME global standards for basic medical education as discussed in the conceptual framework in chapter 1. They are provided again here in their abridged format for ease of reference and as they are used further in this study

1. Mission and objectives
2. Educational programme: Methods, activities and content
3. Assessment of students
4. Students
5. Academic staff
6. Educational resources
7. Programme evaluation
8. Governance and administration
9. Continuous renewal

2.3.1 Mission and objectives

The first four standards cover the educational institution's requirement to define a set of competencies which through the curriculum will achieve the desired educational outcome. This outcomes-based approach is echoed by the HEQC (2004) and Murphy, Seneviratne, Mcaleer, et al (2008).

In 1997 the FHS, US listed a set of competencies termed the 'Profile of the Stellenbosch Doctor' (see Appendix 1) prior to developing the current curriculum. It fits the WFME standard in that it describes the knowledge, skills and attitudes required for a doctor to function autonomously in the primary health care sector, which is the relevant health system in SA. The characteristics include social responsibility, community involvement and readiness for post basic professional development. These tie in with outcomes for undergraduate medical education published by the HPCSA (Du Preez, Pickworth & Van Rooyen, 2002) a principle stakeholder providing accreditation for all SA MBChB curricula. Higgins, Reading and Taylor (1996, pp45-54) suggested that the mission should not only

meet the requirements of these higher stakeholders but should also meet the demands of academic staff and students. The WFME quality standards included the wider input of community and health care authorities.

Although the CRS was not involved in the development of this profile, it was accepted by the CRS at the time of drawing up the new Rehabilitation programme. CRS (together with Family Medicine and Community Health) as part contributor to the six-year curriculum, focussed on its contribution in addressing characteristics relevant to rehabilitation. The working group agreed that some competencies such as basic scientific concepts were considered prerequisite knowledge. Other characteristics were merely opportunistically reinforced (e.g. ethics and research methodology). Issues such as prevention of disease, knowledge of rehabilitation and ability to function within a team however were considered to be central to the Rehabilitation programme as has been outlined in the previous section on the context of clinical rehabilitation practice.

The CTL guided the CRS to design and plan the delivery of the programme through the development of relative objectives and appropriate teaching and learning activities to achieve the desired outcomes according to the Profile of the Stellenbosch Doctor. Ultimately what is learnt depends not only on the planned but also the taught programme as well as the hidden curriculum (Harden, 2005). The latter includes the learning environment, approach and attitude of teachers, work load, support for students, teaching atmosphere, co-ordination of time tables for example. In developing the programme, a requirement was that all these aspects had to be documented in study guides to provide clear instructions for students and teaching staff to facilitate that students learn what is intended. These principles were applied during the programme development phase and the study guides have been reviewed as the programme has been updated.

The standards also suggested that faculties autonomously design their own curricula and allocate resources necessary for implementation. In terms of time, this had occurred at faculty level and the CRS was merely allocated teaching time together with Family Medicine and Community Health. Negotiation thus took place between these three contributors as to how the allocated time would be divided. Within the CRS the allocation of funding to the undergraduate programme had to compete with other activities of the centre. The implementation of the suggested activities of the MBChB Rehabilitation

programme, was dependant on staff allocated to or contracted in for the delivery of the programme.

2.3.2 Educational programme

The eight WFME standards in this group referred to the achievement of clinical competence through appropriate instruction methods which tied in with the HEQC (2004) teaching and learning strategies. Linkage with the health system, as has been discussed, refers to the graduate's ability to manage persons with disability at all levels within the health care system. The following section is divided into the themes that further emerged from the literature.

2.3.2.1 Community based education (CBE)

In the WC, as in the rest of SA and many countries internationally, there has been a shift of focus from specialised care at tertiary hospitals to providing cost effective primary health care in the community where the highest need lies (DoH, 2005; GMC, 2003). Traditional placement of students at tertiary hospitals, where bed numbers and length of stay have been reduced (De Lisa, Leonard, Smith & Kirshblum, 1995) and patient cases have become super-specialised, has become inappropriate. Community based (or orientated) education (or learning or training) is considered to be an appropriate modern day instruction method.

This is applicable to rehabilitation services as has been described where for example early discharge and treatment by community based stroke teams has been found to be more cost effective than in-hospital rehabilitation alone (Fjaertoft, Indredavick & Lydersen, 2003; Langhorne, Taylor, Murray, et al, 2005). Al-Dabbagh and Al-Taee (2005) further described community based practice as the real world and is considered important by practicing generalists (Physicians, Paediatricians and Family Physicians) (Vinson, Paden, Devera-Sales, et al, 1997) and specialities such as rehabilitation, public health and preventative medicine. However medical students did not always value CBE as real medicine when compared to tertiary hospital teaching (Ward, 1992; Mash & De Villiers, 1999).

Kristina, Majoor and Van Der Vleuten (2004) defined CBE as the education of health professionals relevant to the health priorities of the community in which the educational institution is based. Kwizera, Igumbor and Mazwai (2005) reviewed the origins of the University of Transkei (UNITRA), which later became the Walter Sisulu University, when it

was borne out of the need to appropriately train medical students for the 87% black majority population (in SA in 1978) and rural practice. Furthermore they noted that the concepts of community and problem based programmes were then still new to SA medical education and were initially introduced informally and eventually with much trial and error, formally by 1992.

At US, Mash and De Villiers (1999) noted that community based programmes were only introduced in 1998 to Family Medicine. This report was written by members of the same Family Medicine division that shares module time in the same university context with Community Health and the Rehabilitation programme under review in this study. The tool that they developed for their study was piloted on the first two of the twelve annual rotations of medical students through Family Medicine and consisted of quantitative and qualitative questions and focus group discussions. Of interest to the researcher in developing research tools for this study, was that they asked students to rank all aspects of the programme according to value ("*relevant and useful*"), enquired if there had been repetition of previous learning and requested suggestions for improvement to the course.

The US documented barriers to implementation of community and problem based teaching such as the attitudes of staff and faculty, especially older staff more familiar with traditional teaching. Mash and De Villiers (1999) commented that the traditional organisational framework in existence at the US medical school at that time, where departments were based on the different body systems, was seen as a severe obstacle to learner-centred teaching where freedom of expression, active participation and questioning are encouraged. These are interesting comments as these exact values are promulgated in the Profile of the Stellenbosch Doctor which was made available with the development of the revised MBChB curriculum, prior to the publishing of this article in 1999.

Within this community context, the needs of persons with disabilities, the role of the doctor in managing disability and resource availability determines the outcomes and content of a rehabilitation programme. This core body of knowledge for the programme can be divided into knowledge, skills and attitudes and linked to faculty mission and objectives as per the Profile of the Stellenbosch Doctor. Whereas knowledge and skills form the foundation of the programme, attitudes determine clinical performance (Mitchell, Hayes, Gordon & Wallace, 1984; Woloschuk, Harsym & Temple, 2004).

CBE provides opportunities to teach primary health care principles such as prevention and health promotion, knowledge and understanding of community resources (Meyer, Armstrong-Coben & Batista, 2005) both which form part of rehabilitation philosophy. CBE also allows for longitudinal exposure to chronic disease which is evident in disability (Worley, Silagy, Prideaux, et al, 2000). O'Toole, Kathuria, Mishra and Schukart (2005) described how a community setting can expose students to the needs of vulnerable and disadvantaged populations. Gitlow and Flecky (2005) voiced benefits such as better insight into accessibility and the role of the environment (physical, attitudinal, health, social, etc) in which the disabled find themselves and an increased awareness of their roles as advocates. Nazereth and Mfenyana (1999) described further benefits of CBE for medical students as: observation of physicians fulfilling advocacy roles as well as performing the necessary administrative and facility management duties which they may well have to perform in their future practice.

2.3.2.2 Problem based learning (PBL) and evidence based medicine (EBM) approach to teaching

Because of the undifferentiated nature of the cases seen in general practice, PBL occurs (Mash & De Villiers, 1999) which leads to EBM, two further WFME standards. PBL and EBM need not only take place in the community setting but with case scenarios can be simulated in laboratories and classrooms.

PBL may not achieve higher academic outcomes (Goodyear, 2005) but as it necessitates students to become responsible for gaining their own information, it is presumed that the skill of lifelong learning will be developed (Gibbs, Brigden & Hellenberg, 2005). It facilitates learning at a deeper cognitive level and was reported to be more enjoyable than formal lecturing.

Harden (2005) described PBL as teaching that takes place through small group tutorials with the tutor being a facilitator rather than a content expert. Staff need to plan an activity so that it achieves the educational outcomes defined by the programme. As learning is dependant on multidirectional interaction between the tutor and the student group members, team work and communication skills are also developed. As this is a relatively modern educational strategy, staff training may well be required. While facilitating such a group, the tutor may assess knowledge, skills and attitudes of the individual students.

2.3.2.3 Planning activities

Higgins, Reading and Taylor (1996, p120) listed four dimensions that constitute a learning environment. Firstly, they referred to a cognitive apprenticeship which is learning in the context of future practice which relates to CBE as discussed.

The second dimension was that of the pedagogical methods of modelling, scaffolding and coaching, where the student moves from observation of a teacher-performed task, through teacher-supported to teacher-observed independent execution of the task by the student depth (Higgins, Reading & Taylor, 1996, pp120-121). Articulation involves the student's reasoning while executing the task. Once the student is able to reflect on their own performance they will be able to explore solutions to improve performance. For example, in the medical field this would include assessment, diagnostic and management skills as well as rehabilitation essential skills such as interpersonal communication and team work skills. These methods need to be applied according the stage of knowledge acquisition as described by Bloom (Leinster, 2005) and will determine assessment methods at the various stages of the programme as tabled below.

Table 2.5: Application of learning theories to teaching and assessment methods

Bloom's taxonomy	Description of ability	Pedagogical method	Appropriate assessment	Progression
Remember	Recall of information from long-term memory	Modelling, Scaffolding	Recognise, recall	Early Phase
Understand	Being able to interpret the meaning of instructions		Explain, classify, compare, interpret	↓
Apply	Using the information in a defined context	Coaching, articulation	Execute or implement	Mid Phase/Theory Block
Analyse	Dissecting the bigger picture into smaller parts and understanding the interrelationship of these parts		Organise, differentiate	↓
Evaluate	Being able to judge according to criteria	Reflect	Pass critique	
Create	Putting it all together to create a new product	Explore	Plan	Late Phase

Activities should thus be graded so that students begin with more teacher-supported activities in the earlier phases of the programme, through to more independent student-driven activities in the late phase. This can be achieved by exposure of the students to progressively complex cases in a spiral manner through the curriculum. Assessment methods also need to be graded through the programme as indicated by the arrow in the above table (Leinster, 2005; Friedman Ben-David, 2005).

Thirdly learning activities should be sequenced so that students first acquire a global understanding of the subject, for example as the ICF has been used in this chapter, before understanding specific aspects which should then be sequentially developed to the appropriate depth (Higgins, Reading & Taylor, 1996, p121).

Lastly students interact with their physical and human environment, in a socialisation process involving both co-operation and competition. To a certain extent this environment is controlled through planning of activities however each student's experience of these environments may be different. There is also a relative lack of control over the interpersonal interaction with the various staff that students come into contact with which was referred to as the influence of the hidden curriculum (Lempp & Seale, 2004). Students should learn to apply their knowledge, skills and attitudes in a variety of contexts and also be able to achieve outcomes by different means for example using a transdiciplinary approach when resources are limited. Understanding of subject matter at this deeper cognitive level instils motivation for further learning beyond that of the set outcomes and promotes long-term retention and continuing professional development (Higgins, Reading & Taylor, 1996, pp121-122).

When reviewing appropriate methods to teach disability and rehabilitation, the following PM&R activities were described: lectures, literature readings, shadowing a patient attending therapy sessions, evaluating patients in an outpatient setting, visiting this same or another patient in their home environment, observing an interdisciplinary meeting, case discussions, visiting and gaining information from community resources, and personal experience of simulated impairment (Jones, Sinaki & McPhee, 1984; Marshall & Haines, 1990; Ward, 1992; Claxton, 1994; Fiedler & Marshall, 1994; Kahtan, Inman, Haines & Holland, 1994; Crotty, Fiucane & Ahern, 2000; Laskowski, Moutvic, Smith, et al, 2000; Saketkoo, Anderson, Rice, et al, 2004; Raissi, Vahdatpour, Ashraf & Mansouri, 2006; Jones & Donald, 2007). Experience of a simulated disability may facilitate students' understanding of life as a disabled person (Grayson & Marini, 1996) however Crotty, Finucane and Ahren (2000) warned that such activities may be perceived to be demeaning. Contact with tutors was spent on feedback, presentation of projects, discussion, reflection on and analysis of experiences and emotional reactions to disability (Jones, Sinaki & McPhee, 1984; Marshall & Haines, 1990; Khatan, Inman, Haines & Holland, 1994; Claxton, 1994; Field & Marshall, 1994; Crotty, Finucane & Ahern, 2000; Saketkoo, Anderson, Rice, et al, 2004).

Only two learning opportunities within the SA context were described, both being from the UCT in the WC, neither being part of a rehabilitation training programme. During the fifth year paediatrics rotation all students visit a child they have initially seen in the wards or outpatient clinic, in the family's home environment. The purpose is to evaluate the impact

of chronic disease on the child and the family (Henley, 1999). Students reported this to be an extremely worthwhile exposure. The second activity described was a four week elective or special study module (SSM) that was introduced in 2003 when the MBChB curriculum was reformed. The UCT Physiotherapy Department offered an 'Images of Disability' module as one of the 76 SSMs available for the 186 medical students in 2004. Although there were only two students who signed up for the module that year, there were five SSMs that were not utilised at all. The rehabilitation module intended to develop positive attitudes towards people with disabilities. The two students spent five days in a wheelchair after which they reflected on their experience (Amosun, Volmink & Rosin, 2005).

Higgins, Reading and Taylor (1996, p89) described how students learn through developing educational programmes themselves. This called to mind the saying '*watch one, do one, teach one*' which the researcher recalls from her student days. Imparting knowledge to other students during interdisciplinary sessions and to patients can provide reinforcement. Allowing students to devise assessments for work learnt is another teaching strategy and provides feedback to students on their assimilation of knowledge (Race & Brown, 1994, pp85-106).

However before any of these activities is embarked on, students need to be adequately prepared (Kahtan, Inman, Haines & Holland, 1994; Crotty, Fiucane & Ahern, 2000). This should be more than the sequential outline of activities but rather an understanding of how the programme builds on previous knowledge especially that acquired in other specialities, which can be used as anchor points for new learning. Pre-tests can identify prior knowledge to tailor teaching sessions and when compared to post-tests can provide a measure of gained knowledge, skills and attitudes (Kahtan, Inman, Haines & Holland, 1994; Laskowski, Moutvic, Smith, et al, 2000). They can also alert the student to the most important aspects of the programme and reduce anxiety for the end of programme assessments.

In order for students to participate in CBE and PBL, a certain level of competency and maturity are required, thus timing of such activities within the curriculum needs to be considered. Timing is also important when it comes to the subject of attitudes.

2.3.2.4 Educational methods and attitudes

The literature was divided regarding the influence of medical school training on attitudes. Littlewood, Ypinazar, Margolis, et al in their 2005 systematic review of 6981 articles between 1992 and 2001, reflected that early exposure, which was most commonly provided in community settings, improved students' confidence and helped them develop a professional identity. Wilkinson, Gower and Sainsbury (2002) suggested that these exposures should not only be early but also repeated. Rillotta and Nettelbeck (2007) although they reported positive attitude changes during medical school training, found that this had little bearing on attitudes in the long term. Exposure at an even earlier age, at senior school level, had however been shown to have longer lasting positive influences (Baxter, Singh, Standen & Duggan, 2001; Mitchell, Hayes, Gordon & Wallis, 1984). Conversely, Holm and Aspegren (1999) and Masson and Lester (2003) report that medical students became more cynical as they advanced through their training and Hammick, Freeth, Koppel, et al (2007) in their systematic review of almost 900 articles on interdisciplinary exposure noted that early university exposure not always resulted in positive attitude changes.

Although scales are available to measure expressions of attitudes in general (Tuel, Meythaler & Penrod, 1996), towards interdisciplinary learning e.g. Readiness for Inter Professional Learning Scale (RIPLS) (El-Zubier, Rizk Al-Khalil, 2006; McFadyen, Webster & Maclaren, 2006) and to those with disabilities e.g. Modified Issues in Disability Scale (MIDS) (Sabharwal & Fiedler, 2003) they do not measure observed behaviour and are thus subject to respondents' desire to be socially correct especially if this forms part of student assessment (Day, Yeh, Franko, et al, 2007).

If early and repeated exposure is said to positively influence attitudes to the disabled, interdisciplinary team work and community based teaching, the researcher questioned what contributes to the negative or impartial attitude observed in some clinicians? In exploring attitudes, it was reported that doctors perceived the field of disability and rehabilitation to be challenging which may be because practitioners generally do not have the ability to recognise or manage disability (Bulsara & Fynn, 2006). Traditional medical teaching tends to focuses predominantly on diagnosis and cure (Woloschuk, Harasym and Temple, 2004), despite the fact that even modern advances cannot cure all and many patients are left with residual impairment (Dimyan, Dobkin & Cohen, 2008). Professionally when practitioners are faced with chronic or disabling conditions that cannot be cured it

raises in them fears of inadequacy. Wainapel (1999), a physician with a visual impairment, in criticism of fellow able bodied specialists, agreed with this commenting that this results in inferior service delivery.

Persons with communication or mobility impairment may be difficult to obtain a history from or examine in the routine manner, again challenging the physician (Piachaud, 2002). As discussed disability management extends beyond the bio to the psycho and social arenas. Dowrick, May, Richardson and Bundred (1996) explained that where patients expected their doctor to be able to manage the social and functional aspects of disabilities in addition to medical components, doctors did not always agree. Differing opinions re professional roles challenges the doctor-patient relationship. Practitioners mentioned that co-ordinating care with other disciplines poses restraints. Practicalities such as structural environmental barriers and the need for additional time to assess a person with a disability (Wei, Findley & Sambamoorthi, 2006), which in the case of privately funded patients is not always covered, also effected attitudes towards persons with disabilities.

Personally doctors found persons with disabilities less attractive (Aulagnier, Verger, Ravaud, et al, 2005) and that these patients faced them with the reality of their own mortality. These perceptions may have been based on childhood and social experiences (Duckworth, 1988; Owoeye, Ologe & Akande, 2007).

Byron, Cockshott, Brownett and Ramkalawan (2005) suggested that attitudes can be influenced firstly by equipping doctors with the appropriate knowledge and skills in order to improve their confidence in being able to manage disability. Formal activities such as consultations or home visits to the disabled and interdisciplinary activities can familiarise students with these situations. Interdisciplinary learning not only conveys knowledge about these other disciplines but also develops skills such as inter-personal communication and attitudes towards other professionals and their professions.

Furthermore, Stachura and Garven (2007) found engagement on a social basis with persons with disabilities be they patients, fellow students or faculty members, to positively influence attitudes. Exposure to the cultural differences and needs of the different population groupings of age, gender, ethnicity, religion and disability (Eddey & Robey, 2005) allows students to feel more comfortable with these differences (Paris, 1993). In addition, the impact of the hidden curriculum as conveyed through medical school culture,

enrolment of students from all demographic groups, attitudes and teaching style of teaching staff, role models, clinicians etc, must not be underestimated (Lempp & Seale, 2004).

2.3.2.5 Logistics related to the educational programme standards

The WFME standards noted that the content and sequencing of these learning activities must be documented. According to the NQF, a programme is made up of unit standards. At the FHS these are referred to as modules and are required to be written up in the format of a study guide. Such documents define learning outcomes for the exposure and help direct students and tutors. Laidlaw and Hesketh (2005) wrote that study guides should guide the student regarding the content of the module and the resources and activities used to acquire the knowledge, skills and attitudes in order to achieve the desired outcome. The US study guides, extracts of which are contained in appendices 2-5, reflect the information that they suggest should be included. In addition preparation tips for the assessments and personal comments can be included. Assessments which also drive student learning will be discussed in the following section. Furthermore the written format of the text can contribute to its usability.

Even though CBE and PBL allow for flexibility and are not dependent on the availability of a specific case at one given time, core elements still need to be covered by the end of curriculum (or programme) such as basic medical sciences which form the foundation of applied clinical science. The standards further state that the teaching of these should be vertically integrated with behavioural, social sciences and medical ethics so that they can be collectively applied in clinical decision making (Van Niekerk, 2003). Furthermore integration of teaching across the various specialities of the curriculum allows for horizontal integration. As has been discussed this is naturally supported in the context of CBE and general practice.

Rehabilitation training programmes may be offered independently, part of larger programmes, as in the case of US rehabilitation programme, or as part of other specialities. In Iran where rehabilitation is taught as a separate speciality, 65% of the medical students felt that it should be taught as a separate course where as 35% felt it should be integrated into each field of medicine (Raissi, Vahdatpour, Ashraf & Mansouri, 2006).

Worley, Silagy, Prideaux, et al (2000) also indicated that students need adequate specialist teaching to create a structured frame of reference when doing PBL tasks and to ensure all learning areas are covered. They suggested that this can be provided by didactic teaching and specialist outreach which would reinforce social responsibility. In this way student placements support rather than burden community resources.

Jones and Donald (2007) described such a placement of medical students at a school for intellectually disabled pupils in rural Australia. Students were used to help the physiotherapist transport the pupils 1.5 km to a Youth Centre where the children could go bowling in order to improve their motor skills. Students assisted with transferring the children in and out of the vehicle and supervising the children throughout the course of the outing. The learning outcomes were that the students became more comfortable in handling and communicating with children with intellectual disabilities and appreciated the needs and resources that these children needed. This service could not have been provided with out the help of the students.

Meyer, Armstrong-Coben and Batista (2005) suggested that partnerships between educational institutions and community resources should be on a one to one basis, with shared values and goals in developing community programmes. This reduces potential resentment of the community sites as passive recipients of student placements. Faculty involvement at community level can thus be through clinical service but could also include community based research (Calleson, Jordan & Seifer, 2005).

Community based placements must also take into consideration practicalities such as transport which may be to township areas, raising fears in students (Mash & De Villiers, 1999), costs and time. As CBE is usually conducted in small groups at multiple sites, quality control needs to be established. Murray, Todd and Model (1997) suggested that this can be achieved through student feedback which can be directed into tutor training and contract renewal. Such feedback and training may be seen as a reward for clinicians involved in teaching as will be discussed in the section pertaining to academic staff.

Programme management (or programme co-ordination as termed by the HEQC) is the last standard in this area. A curriculum committee is established at US, but enquiry into the co-ordination at the level of the programme was required. The WFME quality standard allocated course evaluation to such a committee and calls for representation from staff,

students and other stakeholders. These stakeholders would form the study populations for this study.

2.3.3 Assessment of students

As mentioned in the previous section assessment is a recognised driver of student learning. Piachaud (2002) noted failure to evaluate subject material may carry the message that it is of less importance and students will not complete the learning activities. Thus the three outcomes areas of knowledge, attitudes and skills must be assessed. However if learning at a deeper cognitive level is to be fostered assessments should not create anxiety. This can be achieved by evaluating stated appropriate objectives, relying on understanding rather than recall and providing feedback on performance to students (Higgins, Reading & Taylor, 1994, pp114-120).

Student assessments are of value for the student to gauge their progress, can determine qualification and further entry into post graduate programmes or employment. Students can be evaluated continuously throughout the delivery of the programme. Burch, Seggie and Gary, (2006) described these formative assessments which tend to be less formal and more descriptive, providing the student with ongoing feedback. They also described summative assessments as conducted at the end of an exposure which tend to be more formal and quantitative. Both can be combined to provide a final mark for an exposure.

Ipsative assessments can contribute to PBL by allowing students to test themselves in order to direct further self learning (Gibbs, Brigden, Hellenberg, 2005). Although time consuming, the acquisition of competency can be measured by assessing students pre and post exposure (Laskowski, Moutvic, Smith, et al, 2000).

The WFME standards called for validity or relevance, that assessments evaluate the learning objectives (Gibbs, Brigden & Hellenberg, 2006), and that the methods and pass requirements, be documented. Norm referencing (comparison to other students in a group) or criterion referencing (where a pass mark is set) may be used (Daubenton, 1990) to determine if a student has mastered a subject. Setting of these standards should follow recognised methods as described by Norcini (2005) and the IIME (website accessed 05/11/2009). Global rating scales can be used in conjunction with quantitative measures to provide an opinion if the learning objectives have been met or on their own to judge skills. These are easy to apply and can be used by staff (Cilliers workshop attended 13/11/2008)

and by patients when assessing a student's behaviour or attitude. These however are subject to a high degree of error, be this the halo effect (where all aspects or students are rated similarly) or the central tendency (where raters avoid the extremes of the rating scale) (Friedman Ben-David, 2005).

The GMC (2003, website accessed 24/08/2007) and SAQC (2004) further noted that in order to perform reliable or inter and intra examiner consistent assessments, that consistent examination tools with objective scoring criteria should be used. Assessors should be trained to perform assessments and both students and assessors should receive feedback on their performance in assessments.

Weighing up the value of different assessment methods should include feasibility in terms of resources e.g. finances, time, equipment, venues, staff, equipment and patients. Different methods assess knowledge, skills and attitudes to different extents as presented in the adapted table adapted from Daubenton (1990) below. Each method however is subject to the quality of the individual questions used (Schuwirth & Van der Vleuten, 2005; Seggie & Burch, 2006).

Table 2.6: Summary of the characteristics of frequently used evaluation methods adapted from Daubenton (1990).

	Component to be assessed				
	Knowledge	**Skills**			**Attitudes**
Assessment method		Problem solving	Clinical technique	Communication	
MCQs	+++	+	0	0	0
Extended matching items	+++	++	0	0	0
Essay	++	+	0	+	++
Oral	++	++	0	+	++
Portfolio	++	++	+	+	+++
Presentation	++	+	+	++	++
Clinical short case	+	+	+++	+	+
Clinical long case	+	++	+	+	++
OSCE	+	++	+++	++	++
In course assessment	++	++	+++	+++	+++
Attitude scales	0	0	0	+	+++
Key: 0= poor, + = fair, ++ = good, +++ = excellent					

Although resource intensive (Humphris & Kaney, 2001), the use of the OSCE was reported as widely accepted by staff and students. Standardised patients (persons without a health condition or chronic stable patients who are trained to present a health condition in a uniform way) may, especially in rehabilitation, be suitable judges of attitudes. Jain, Nadler, Eyles, et al (1997) described how training of standardised patients in PM&R, although arduous, can improve reliability of the OSCE. A core set of questions covering rehabilitation outcomes such as history taking, physical examination, communication abilities, prescription writing, assessing radiographic and electro-diagnostic material was suggested.

Finally, assessments results can be used as a tool to evaluate a programme and can form part of an accreditation process of a curriculum. In 2003 the IIME selected MCQs, an OSCE with standardised patients and longitudinal faculty observer ratings from 75 assessment tools to evaluate core competencies in final year medical students across eight medical schools in China. Acceptable pass marks for each set of competencies were established by a panel of experts. The competence of the medical school was determined by comparing the marks of the students against these standards (IIME website accessed 05/11/2009). The use of student results to evaluate the US Rehabilitation programme was considered for this study.

2.3.4 Students

The size of a student intake will be determined by the capacity of the medical school. The process, however, must be equitable of community needs (gender, ethnicity, previously disadvantaged students) and must be documented. Once recruited adequate student support must be available and students should contribute to stakeholder representation on programme committees (Guitard, Duguay, Thérialt, et al 2008). These standards will be determined at US at faculty level and not personally by the Rehabilitation programme under review in this study.

CBE contributes to service delivery and attracting future doctors to previously under-serviced areas (Kristina, Majoor & Van Der Vleuten, 2004). In SA the need for graduates to work in rural practice has been specifically identified and De Vries and Reid (2003) in a study of graduates from five of the eight medical schools in SA, including MEDUNSA, reported that up to 46% of students of rural origin returned to rural practice after graduation. In SA equity in race and gender has changed the face of student enrolments but representation of the disabled community was not evident amongst the US MBChB

student intake. Wainapel (1999) wrote that, although he has specialised in the field of rehabilitation, disabled doctors can be accommodated in all branches of medicine. At that time he reported on the hesitancy of faculties to admit students with disabilies as their abilities were questioned and doubt existed regarding structural requirements of the training facilities. Guitard, Duguay, Thériault, et al (2008), however described how Canadian students with (mainly visual) physical disabilities could be accommodated through attitudinal changes of staff, alternative educational material and extra time allowances. These students, who voiced the desire to help others with disabilities, were mainly enrolled in occupational therapy programmes and to a lesser extent in physiotherapy courses. Where personal qualities of assertiveness and perseverance as described in the ICF enabled these students to cope, conversely a deficiency in reading, literacy, language, computer, etc skills substantially influenced learning in students with these subtle disabilities.

Students with disabilities thus adapt to cope according to their abilities. Able body students also demonstrate variances but according to personal preferences in learning styles as described by Higgins, Reading and Taylor (1996, pp80-82). They described this according to behavioural and cognitive learning theories where students may have favoured styles which may be more evident in different learning environments. They continued that learning is not only about the acquisition of new knowledge or assimilation but how this is incorporated or accommodated into existing knowledge to achieve a new state of cognitive equilibrium with application in real life situations. Teachers thus need to acknowledge the problem solving and procedural thinking skills required for this process.

Holistic and serial learning styles were described as two ends of a spectrum (Higgins, Reading & Taylor, 1996, pp80-82). Holists appreciate a global approach exploring multiple issues simultaneously for example with case studies as used in CBE and PBL in clinical rotations. Serial learners cope better with more traditional didactic teaching with a step-by-step approach as used in much of the theoretical module teaching. In the practice and thus teaching of rehabilitation as in most fields of medicine an initial global approach is required followed by a more specific problem management style. Both approaches are complimentary and so a variety of teaching and evaluation methods should be utilised to provide an optimal learning experience for all students and the ultimate benefit of clinical practice.

Students' learning is further influenced by the way with which they interact or socialise with learning resources, including staff and other students. These interactions could be observed as part of student and programme evaluation (Higgins, Reading & Taylor, 1996, pp117-125). Inclusion of disabled persons in the student body allows informal interaction with other students and faculty members which may facilitate the development of positive attitudes towards disability (Claxton, 1994).

Although US has a disability office which facilitates the integration of persons with disabilities into all faculties (US website accessed 21/11/2009), the researcher, who frequented the TBH and FHS campus, had only on rare occasions encountered students with physical disabilities. As per the definition of disability, there may however have been students with well controlled health conditions or mild disability enrolled in the US MBChB curriculum. In over 15 years of involvement with the undergraduate rehabilitation training programme the researcher has knowledge of only one medical student with an overt impairment who graduated from FHS, US. This individual has been involved in the medical management of persons with disabilities as a GP, since graduation to date. No further reference could be found supporting an association between students or graduates with disabilities and career pathing in the field of disability during the literature search for this study.

2.3.5 Academic staff

A balance of medical to non-medical, full and part time staff, clinical and academic activities to meet the delivery the programme needs to be established (Faculty of Medicine, University of Toronto, 2003). As mentioned patients with disabilies can be experts on the psychosocial aspects of disability and may not only be available as case studies but may also be paid members of staff and contribute to formal training (Wells, Byron, McMullen & Birchall, 2002). A rehabilitation department needs to co-ordinate such teaching and involve the relevant experts on a full or part time basis.

Lempp and Seale (2004) noted that many teachers, especially those in clinical settings need to be trained and developed to impart and assess knowledge and skills even suggested that doctors involved in training should obtain a recognised teaching qualification. Although time consuming, such training adds credibility to a teaching programme (Jain, Nadler, Eyles, et al, 1997; IIME website accessed 05/11/2009). This training should be continuous to accommodate newer teaching methods such as PBL and

CBE (Gibbs, Brigden & Hellenberg, 2005). Resources for staff development included self directed learning by using for example library textbooks (Steinert 2005) formal courses, peer coaching and mentorship (Higgins, Reading & Taylor, 1996, pp61-64) or other opportunities via a CTL.

Additional to teaching and assessment proficiency, staff should be clinically proficient and have appropriate personal attributes. Tutors have an enormous influence on the hidden curriculum through role modelling, be this positive or negative (Whitcomb, 2005). As learning takes place at a deeper cognitive level when students are interested in the subject, are not threatened or anxious (Higgins, Reading & Taylor, 1996, p23), tutors need to be able to provide a positive learning experience, fostering enthusiasm for the subject ensuring that the material is remembered long after the evaluation. Personal attributes such as integrity, commitment to their subject, compassion, objectivity, a sense of humour, good interpersonal communication and an appreciation of their own strengths and weaknesses were highly regarded (Seggie & Burch, 2006).

Training in itself can be considered a stimulating reward for being involved in student training, and Continuing Professional Development (CPD) points (Murray, Todd& Model, 1997; Gibbs, Brigdon & Hellenberg 2005) required for ongoing registration as medical practitioners in SA can be awarded for training and participation in teaching. Further rewards documented were professional recognition as honorary lecturers (Dewey, Friedland, Richards, et al, 2005), students providing stimulating discussion around current protocols (Murray, Todd, Modell, 1997), enhanced learning from patients through teaching sessions (Gibbs, Brigden & Hellenberg, 2005), insight into dealing with young adults (O'Mahony, 2004) and a personal satisfaction of social responsibility in contributing to future doctors' training (Whitcomb, 2005).

From the description of clinical rehabilitation services it is apparent that medical doctors working in the field of rehabilitation and available for teaching medical students are limited. As described by other specialities with limited resources (Michel, Huber, Cruz-Jentoft, et al, 2008) integration of rehabilitation teaching into other areas of medicine may be a solution. Students can be primed for this integrated approach by enquiry into application of rehabilitation principles into other specialities and vice versa (the application of other specialist knowledge into rehabilitation learning experiences). With CBE, integration of the

rehabilitation programme at US with Family Medicine, with GPs as facilitators, appears to have been valuable.

As rehabilitation requires interdisciplinary team work, it stands to reason that teaching around functional and social aspects of the ICF may be best delivered by these rehabilitation professionals integrated across all the specialities of medicine (Medicine, Surgery etc). Articles regarding the value students place on rehabilitation teaching by members of the inter-professional team and GPs could not be found during the literature search for this study, and remained a question that needed to be explored.

2.3.6 Educational resources

Higgins, Reading and Taylor (1996, pp80-81) described the use of resources to match the learning styles of students. Where PBL suits the student with a holistic approach, serialist learners cope better with more traditional didactic teaching. Their perspective appeared to be from librarians and included traditional resources such as reading lists, library access, the internet, conferencing and multimedia. Readers consisting of copyright material approved for copying and lecture notes made available electronically saving students time and the need to duplicate resources such as text books were also listed.

Physical facilities listed were lecture theatres, libraries and recreational facilities. With the move towards CBE and evidence based learning, information technology (IT) can ensure that information including assessment results are available to students both on campus and at distant sites (Mash, Marais, Van Der Walt, et al, 2005). Undergraduate students, although they may differ in computer skills and preferred method of learning, were generally familiar with computer technology, however staff may need to be appropriately trained and technical support must be available to both groups (Hugo, 2007).

IT is steadily taking its place in undergraduate medical education (Barzansky & Etzel, 2005). E-learning incorporates online delivery of course content and interactive chat rooms and bulletin boards as well as offline CDs and DVDs (Davies, 2005). Treadwell, de Witt and Grobler (2002) described the use of an interactive multimedia programme on CD-ROM together with a supervised skills laboratory session in teaching neonatology skills. Although this could not replace attitudinal experiences and soft skill development as can be obtained for example in an interdisciplinary team experience, this approach could be considered to teach designated knowledge and skills within a rehabilitation training

programme. This SA study based in Pretoria was borne out of staff shortages and the need for repeated teaching to small groups. Although students preferred direct patient contact, advantages such as availability of programmes in relevant languages, cost-effectiveness, and availability of material in preparation for clinical rotations and for revision, both which encourage self directed learning, were sited.

The CRS has experience of internet based post graduate teaching programmes which allow for long distance learning and accommodates for staff shortages (Hugo, 2007). Video tapes and slide shows have been used in the previous US Rehabilitation programme and could be adapted for present day use with modern technology as described in the Preventative Pulmonary Academic Award (PPAA) programme (1993).

In contrast to didactic teaching experiential learning makes use of projects and laboratories with PBL requiring the availability of clinical sites and suitable patients. Although public services are traditionally used, private facilities should also be investigated as discussed under the clinical contextual environment. Exposure to specialised and generalised, community and institutional platforms should be considered to give students an opportunity to apply knowledge and skills in various contexts.

The involvement of the patient as a resource in all these settings can take various forms. A traditional model where the student sits in on a doctor-patient consultation varies vastly from a model where patients contribute to programme delivery (Byron & Dieppe, 2001; Coleman & Murray, 2002). Patients with chronic illness are considered to be experts regarding the role of contextual factors on health and can teach students from their various experiences of the health system ranging from challenging diagnostic to treatment issues (Stacy & Spencer, 1999; Wells, Byron, McMullen & Birchall, 2002). Although not medical experts, they are in the ideal position to educate students as to their perspective as to how medical care could be delivered and to the functional and social implications of disability. Ideal patients demonstrate responsibility for their health and are typically older and have many years experience of being disabled (Shapiro, Mosqueda & Botros, 2003). Patients and students should be prepared for this type of interaction, be it observed or direct consultations, formal lecturing or informal socialisation. Although some patients expect financial rewards most stated that the altruistic benefits of contributing to the health system, personal gain in knowledge and socialisation were benefit enough (Coleman & Murray, 2002). Patients should thus give input into programme development and

evaluation (Crotty, Finucane & Ahren, 2000; Byron & Dieppe, 2001). No such examples of patient involvement in rehabilitation programmes could be found in the literature searched.

Training programmes can be enriched through exchange with other departments and universities and these can be considered as resources. Experience can be drawn from training programmes in rehabilitation and related fields. As the US programme is unique in SA international collaboration can be sought. Differences between SA and international medical training programmes as explained in the introductory chapter of this study need to be taken into account.

The development of the field of rehabilitation in various parts of the world also differs. In North America rehabilitation originated in the 1930's after the World Wars and Polio epidemics (De Lisa, Leonard, Smith & Kirshblum, 1995; American Academy of Physical Medicine and Rehabilitation website accessed 20/04/2007). PM&R was established as a speciality with the first graduate of the American Board of PM&R qualifying in 1947 (University of Pennsylvania website accessed 20/04/2007). In 2004, Vlak, Boban, Franulovic-Golja and Eldar reported that 60% of USA medical schools were teaching PM&R. In the UK, the British Society for Rehabilitation Medicine was established in 1984 (Frank, 1998). The existence of PM&R departments and undergraduate training was reported in the eastern countries, however, the details were scanty. Iran for example has an undergraduate rehabilitation training programme as of 1966 (Raissi, Vahdatpour, Ashraf & Mansouri, 2006). Standards for clinical practice and specialisation in European countries which are consistent with practices in America, were published in the Whitebook on Physical and Rehabilitation Medicine in Europe as recently as 2007 (Gutenbrunner, Ward, Chamberlain, 2007).

Although PM&R departments are established at most North American, Australian and UK universities, undergraduate rehabilitation programmes are only taught in about half of these medical schools (Lane, 1983, Kahtan, Inman, Haines & Holland, 1994), many only on an elective basis. Although the need is recognised in Europe (GMC, 2003 website accessed 24/08/2007; American Medical Student Association website accessed 24/08/2007), rehabilitation is seldom included in undergraduate training programmes. Even where it is, PM&R is poorly acknowledged by medical peers (Greenwood, 2001) and not a popular undergraduate subject (Ward, 1992).

Except for one description of a training ward that was created in Sweden (Ponzer, Hylin, Kusoffsky, et al, 2004) most of the rehabilitation and related programmes provided isolated activities ranging from didactic lectures to patient interactions and discussion groups as listed in 2.3.2.4 above. These programmes covered core contents as described in the Whitebook. Programmes varied from around 15 hours to four weeks and offered single to multiple exposures, at various stages of the curriculum.

Most programmes described were challenged by the fact that rehabilitation is a young speciality but having stand alone departments of rehabilitation seemed to be of benefit in establishing and maintaining these programmes. Insufficient staffing and teaching time were recurring issues with integration into other specialities being a recommended solution (Marshall & Haines, 1990; Claxton, 1994; Khatan, Inman, Haines & Holland, 1994; Crotty, Finucane & Ahern, 2000).

2.3.7 Programme evaluation

Earl, Carden and Smutylo (2001) and Leinster (2005) stated that ideally an evaluation strategy should be developed at the time of curriculum planning. Evaluation includes the monitoring of the context, components (formative aspects) and outcome (summative aspects) of the programme by valid and reliable methods. Departmental budgeting may insist on costing of physical and human resources but this is merely a component of evaluation. As described in the WFME standards total quality management encompasses effectiveness through continuous evaluation and improvement by all staff (Higgins, Reading & Taylor, 1996, pp45-53).

The WFME suggested monitoring feedback from the curriculum committee, teachers, students and other stakeholders using monitoring tools. Ranasinghe, Wickramasinghe, Wickramasinghe, et al (2011) noted feedback from medical students to be reliable and valid as they are integrally part of the programme. Most programme evaluations found in the literature search focussed on university based educational models using feedback from students (Kahtan, Inman, Haines & Holland, 1994; Crotty, Finucane & Ahern, 2000) and to a lesser extent from lecturers (Marshall & Haines, 1990) and faculty administrators and departmental heads (Frenk, Chen, Bhutta, et al 2010).

With a move from university through student to patient centred educational models (Frenk, Chen, Bhutta, et al 2010), the inclusion of community clinicians and patient populations in

programme evaluation was supported (Dent & Harden, 2005) but no research using this viewpoint could be found during the review of the literature. The public and future employers were listed as further stakeholders who could give input into curriculum planning (Leinster, 2005).

As suggested by the PPAA programme (1993), student feedback at US obtained by the module chairs after each joint clinical exposure (Rehabilitation, Family Medicine and Community Health) covers content, methods of teaching and evaluation, resources, usefulness and acceptability. McEwen, Harris, Schmid, et al (2009) noted that students' perceptions regarding achievement of programme goals and their own expectations were infrequently evaluated.

Van Wyk and McLean (2007) from the Nelson Mandela School of Medicine in Kwazulu-Natal, SA, reflected that immediate qualitative student feedback to individual facilitators contributed to staff development, where as quantitative data was of more benefit for quality assurance purposes. Race and Brown (1994, pp49-68) described how immediate feedback could be given during lectures and tutorials to improve the quality of these contact sessions. Where feedback questionnaires often used Likert scales, they proposed offering a choice of '*feeling words'* to describe the content, pace and style of teaching. Where questionnaires were used for evaluating programmes these were usually done on an individual basis however allowing a group to discuss and then complete a questionnaire provided deeper perspective.

Rillotta and Nettelbeck (2007) explain that retention of knowledge, skills and attitudes may decay over time and with exposure to other specialities and role models. They suggested that evaluations of programme outcomes should thus be conducted months or even years after exposure.

The WFME suggested and the IIME described how monitoring of student performance can be used for curriculum accreditation (IIME website accessed 05/11/2009). Various authors reported use of pre and post exposure attitude scales or knowledge and skills tests as measures of efficacy of a programme (Sabharwal & Fiedler, 2003; McFadyen, Webster & Maclaren, 2006). However pre and post test results may change not only due to an educational programme, but due to many other influences to which the students may be exposed (Malterud, 1995).

The PPAA programme suggested that appropriateness, efficacy and efficiency and the sequencing of content be evaluated. At US this has been done subjectively through annual review by the Module Chairperson but no formal evaluation methods have been promulgated. Apart from students and faculty staff, graduates, patients and content experts can be consulted for feedback (PPAA, 1993).

McLean from MEDUNSA (2005) noted that as changes are made to a programme, the students experiencing these changes for the first time must be treated as '*torch bearers'* rather than '*guinea pigs'* and should not be overloaded with feedback responsibilities. It is further suggested that a log of suggested interventions, implementations, successes and failures and interested and supportive resources be kept. The guidance of medical education experts was recommended.

2.3.8 Governance and administration

With the changing face of training institutions there has been pressure to deliver consistently high quality programmes to increasing student numbers with diminishing funding. Higgins, Reading and Taylor (1996, pp50-53) proposed a SWOT analysis of the institution's response to this change, where 'SWOT' refers to strengths, weaknesses, opportunities and threats. It was the intention of this study to conduct a SWOT analysis at programme level within the responsible division namely the CRS.

Michel, Huber, Cruz-Jentoft, et al (2008) in their survey of rehabilitation needs of European geriatrics patients, wrote that departments need to be chaired by specialists, who not only have a passion for their subject but also for undergraduate medical education, who can drive these programmes.

From the researcher's experience, governance at the level of the Health Sciences and Education faculties at US are predefined. However support by administrative staff, appropriate stakeholder representation and judicious use of allocated budgets can be applied at divisional level. Stiers and Stucky (undated, accessed 20/04/2007) suggested exploring alternative funding sources such as research and Department of Education funding. De Lisa (1999) noted a shift of funding away from specialised to generalised training programmes. This mirrors the shift in funding that has occurred in the health care system in WC. As generalised care, including rehabilitation is largely delivered by primary

health care practitioners, further integration into Family Medicine or funding via the primary health care stream could be explored.

2.3.9 Continuous renewal

The last standard called for flexibility to the changing needs of society, education, information technology, and biomedical advances. In order to detect these forever changing needs continuous monitoring and evaluation with appropriate tools is required. Such tools could be based on an initial evaluation method such as the one that was developed for this study.

2.4 Chapter Summary

As there were no SA undergraduate medical rehabilitation training programmes or evaluation tools available in the literature, articles related to the clinical environment in which the programme is delivered, the status of rehabilitation as a speciality and educational principles locally and internationally were explored.

These were presented in this chapter according to the nine areas of the WFMEs Global Standards for basic medical education which was used as a framework for this study. Furthermore the Whitebook of Physical and Rehabilitation Medicine, a consensus document on the practice and training in PM&R in Europe, which also conferred with North American thinking, covered the main themes found in the international literature regarding medical undergraduate rehabilitation training programmes.

Linkage to the general and rehabilitative components of the health system was first discussed. Firstly, the WHO definitions of impairment, activity limitations and participation restrictions, collectively termed disability, as contained in the ICF, was given. This underscores the scope of disability and thus rehabilitation and supports the educational principal of teaching rehabilitation across the curriculum rather than in an isolated programme.

From the ICF it is clear that not only medical interventions influence the outcome of a patient with a health condition. Functional and social variables play an important role. This calls for team work and challenges traditional medical model approaches in teaching, health care and specialist driven medical schools. In SA this challenge is augmented by

rehabilitation not being a registered speciality. Internationally even though PM&R is a registered speciality, it is poorly recognised.

The 2001 SA population census aimed to measure the impact of impairment on function and confirmed that persons with disabilities are encountered at all levels of health care. All doctors in SA begin their careers in clinical settings, and even if later involved in academic or administrative practice need to be taught about disability and rehabilitation at an undergraduate level. The community as a teaching platform, which is considered to be a modern educational principle thus follows. This platform encourages interdisciplinary learning and the undifferentiated nature of the cases calls for problem based learning. How it is delivered, within available resources were further standards that needed to be considered. Medical model thinking would support teaching of medical students by rehabilitation trained doctors but teamwork which is central to rehabilitation encompasses teaching by all rehabilitation professionals. Due to the chronic nature of disability, patients with disability may become experts and thus also teachers when embracing a bio psychosocial model.

The rest of the nine areas of the standards covered a range of educational aspects. The first area addressed the alignment of the programme's objectives with the faculty's mission. The second covered educational methods and activities used to deliver the programme in addition to linkage with the health system. The assessment of students was discussed in area three. The fourth area referred to the selection of students, especially those with disabilities and covered student satisfaction. Area five addressed aspects related to staff and that clinicians involved in teaching need to be trained and rewarded appropriately. The sixth area looked at resources to deliver and develop the programme. Area seven considered components of programme evaluation, eight, governance and administrative of the programme and nine pulled the standards together calling for ongoing evaluation and feedback to stakeholders.

This chapter enriched the WFME standards as a framework against which the MBChB Rehabilitation programme of the US was evaluated. The standards proved to be comprehensive and were made relevant to this study through the inclusion of the general clinical and specialised rehabilitation context. Indicators were drawn from this expanded and rehabilitation specific framework from which research methods and tools were developed to conduct this study.

Chapter 3

Development of the Indicators

3.1 Introduction

The literature discussed in the previous chapter provided a detailed picture of the clinical and academic context of this study. In this chapter the nine areas of the WFME Global Standards for basic medical education are used as the framework onto which the literature is hinged. The essence of global non-medical frameworks (e.g. HEQC criteria for programme design), global medical frameworks (e.g. IIME core competencies or GMER, British GMC's Principles of good medical education and training) and articles evaluating under and post graduate, rehabilitation and other relevant training, programmes and activities are pulled together with the WFME standards providing a set of indicators for the evaluation of an undergraduate rehabilitation programme.

This chapter first describes the process of developing the indicators after which the indicators in each of the nine areas is briefly described, fulfilling objective 1. A succinct list of the indicators is provided in appendix 6b. These indicators formed the basis from which the research methods and tools were developed. Data obtained using the tools determined the compliance of the US MBChB Rehabilitation programme against these indicators.

3.2 Methodology used to explore the literature to develop the indicators

The literature was explored according to the three main areas of influence on the programme as depicted in figure 1.2 in chapter 1. These areas were the clinical rehabilitation practice environment, rehabilitation as a speciality and the academic environment.

Literature was sought using Pubmed and Medline databases and the Google search engine using combinations of the following words: 'undergraduate, education, training, disability, rehabilitation, or physical medicine'. Journals focussing on rehabilitation and those focusing on education were also searched for relevant articles. Articles were obtained from the US library, internet or from national and international sources by the US librarians. As Bradley (accessed July 2007) suggested, relevant references within these articles were also traced. Rehabilitation textbooks from the US library and the researcher's personal collection were consulted. The literature search became saturated when

searching for articles older than 25 years. In addition, current articles were periodically sought throughout the progress of this study. Any additional themes that these articles revealed after the development of the tools are included in the discussion.

3.3 Extraction of key themes as indicators

There are 36 WFME Global Standards for basic medical education which are divided into nine areas. Four standards were considered inappropriate for the evaluation of a programme. Of the remaining 32 standards, 29 were retained under their original area and three were moved to another area. Additional relevant literature was added to the most relevant area and remodelling resulted in a set of 65 indicators for this study. This is in line with the WFME concept that the "*standards, of course, must be modified or supplemented according to regional, national and institutional needs and priorities*" (WFME website accessed 24/08/2007).

Themes were frequently repeated in the various articles but none were conflicting or all inclusive. Following this collation of the literature, each criterion of the WFME standards was revisited to ensure all relevant indicators had been included.

The nine areas drew attention to specific aspects of an indicator. However, if the indicator is read in isolation of the area within which it is contained, this may be misinterpreted. For this reason the key focus of each indicator stated in appendix 6b is underlined to clarify the aspect that is being evaluated. For example in indicator 2.3 the focus is on the clarity of the study guides rather than the specific competencies and educational methods that have been chosen for the programme. The appropriate selection of competencies is the focus of indicator 1.1 and selection of methods is in indicator 2.1.

These indicators based on a wide international literature search are in effect standards for any undergraduate rehabilitation training programme and are so worded. Where clarification is deemed necessary, application to the US programme is indicated. The research tools developed in this study are however specific for the evaluation of the US Rehabilitation programme.

Each indicator evaluated a particular aspect impacting on the outcome of the Rehabilitation programme. These included rehabilitation specific principles which are delivered solely by the rehabilitation department (e.g. teaching the definition of disability

and rehabilitation) or may be dependant on other departments (e.g. integration of rehabilitation across the curriculum) or the faculty (enrolment of students with disabilities). In the case of the latter two examples, the achievement of the indicator within the broad context of the MBChB curriculum was essential but dependant on variables outside of the rehabilitation department and thus marked 'preferable'. The achievement of the rest of the indicators, not marked 'preferable', was mandatory. Other indicators which were not unique to rehabilitation but still relevant to the programme (e.g. self-directed learning) were included in the indicators. The achievement of these principles in the broad context of the MBChB curriculum, outside of the Rehabilitation programme however did not form part of the indicators to evaluate the Rehabilitation programme. This is clarified in figure 3.1 below.

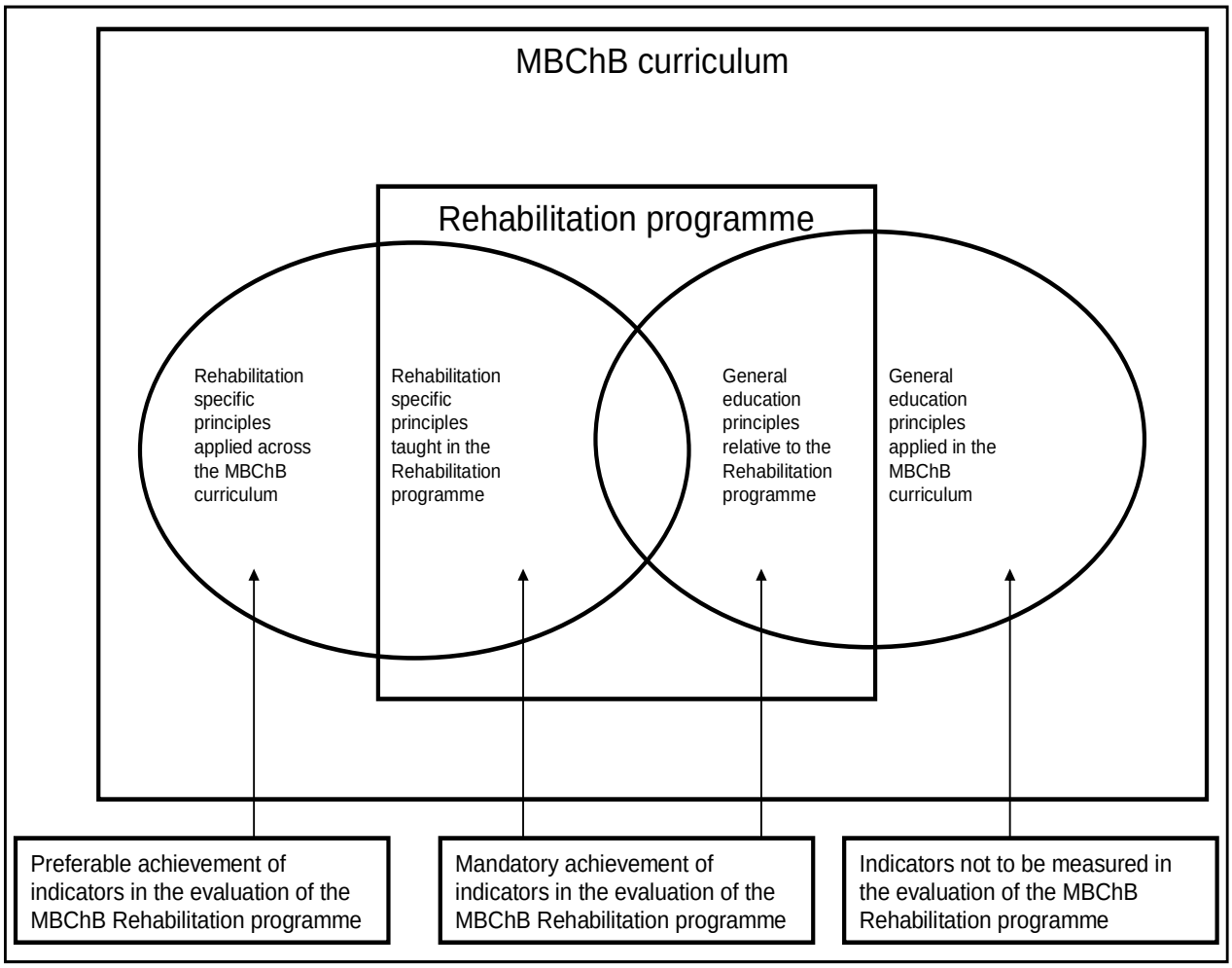


Figure 3.1: Mandatory and preferable indicators and indicators not measured in this study

The indicators in area 2 called for relevance of a rehabilitation programme to the clinical context in which it is delivered. As the literature reviewed was predominantly international

in origin these indicators which reflect the content of the programme were not specific for the US or for the unique SA context as discussed in chapter 2. Although it provided a measure of the content of the programme against international standards, data was also collected in this study as to the relevance and completeness of these indicators in the SA context. In this way standards for rehabilitation training of undergraduate medical students in a SA context were established.

In chapter 2 questions relevant to the evaluation of the programme, but not indicators per se were raised. For example the acceptability of members of the interdisciplinary team teaching medical students and the likelihood of medical practitioners with disabilities following a career in disability and rehabilitation. The tools were designed to gain data to evaluate each of the indicators as well as information to enlighten these questions. These questions do not form part of the indicators but are listed in this chapter with the most relevant indicator.

The indicators are presented here according to the nine areas of the WFME standards as key themes as the concepts have been fully discussed in the literature review.

3.3.1 Area 1: Mission and objectives

This area required that the objectives and competencies set out by the programme are aligned to the faculty mission. The first (statement of mission and objectives) and fourth (educational outcome) of the original WFME standards were of relevance to a programme and were expanded on to develop four new indicators 1.1 – 1.4 which explored various aspects of this area.

- 1.1 The Rehabilitation programme objectives and competencies should align with the faculty mission. The objective of the Rehabilitation programme is to produce a doctor who can manage persons with disabilities within the primary health care setting. The competencies are contained in the study guides (copies are in appendices 2-5). The faculty mission is represented by the Profile of the Stellenbosch Doctor, which can be found in appendix 1.
- 1.2 As the faculty itself does not directly design and deliver the programme, it needs to be established if the department directly involved has a mission. If so this should be stated and this should also be aligned with the objectives and competencies of the programme. In this case the department is the division, CRS, US.

- 1.3 The objectives and competencies need to be communicated to those involved with the delivery of the Rehabilitation programme. The literature referred to documented communication such as study guides. Verbal communication, unless recorded cannot be measured.
- 1.4 The objectives and competencies must be communicated to students. Again this can be written or verbal as in the introduction sessions if a pro forma is provided.

3.3.2 Area 2: Educational programme

This area made up the bulk of the indicators and was divided into two sections: a) methods and activities and b) content. The WFME had eight standards in this area. The first six standards covered educational principles and were incorporated in area 2a. The seventh standard (programme management) was covered in this study in the area of governance and administration (area 8 below). The eighth standard called for linkage with medical practice and the health system and this was expanded in 2a to cover overarching principles such as team work and the role of the GP in managing persons with disabilities. Area 2b was created to further expand on the eighth standard to cover the content of clinical rehabilitation practice in SA.

3.3.2.1 Area 2a: Educational programme: methods and activities

Area 2a referred to educational methods or activities that were considered internationally appropriate (such as lectures, patient contacts, case discussions, contact with community resources, simulation of a disability, exposure to teamwork, teaching by doctors, therapists and patients, reflection on learning activities) to achieve the rehabilitation programme objectives and competencies. These are listed as indicators 2.1 – 2.20. Methods such as team work and teaching by patients were considered mandatory for a rehabilitation training programme. The listing of these indicators follows the ordering of the WFME standards rather than the literature review.

- 2.1 A variety of educational methods or activities as listed above should be used. To gain insight over and above the literature, enquiry into additional methods and activities that could be considered as well as those preferred was included with this indicator. The full list used in this study included: Lectures by rehabilitation clinicians, lectures/discussions with persons with disabilities to understand the impact of disability, evaluating patients with disabilities, case discussions, exposure to teamwork, home visits, group research/projects, presentation to class/group, visits to community rehabilitation resources, practical demonstration of patient evaluation and examination,

practical demonstration of skills (e.g. stump bandaging, wheelchair positioning, patient transfers), simulation of a disability (e.g. spending a day in a wheelchair or on crutches), reflection on learning experience.

- 2.2 Apart from identifying the methods and activities to be used, the students need to be prepared that they may learn in a way not previously experienced e.g. from the members of the inter or multidisciplinary team. They may be exposed to situations that may invoke emotions or reactions. For example students need to be prepared to deal with the challenges of applying a conventional approach to assessing and managing persons with disabilities and alternatives need to be discussed before the students complete their activities.
- 2.3 The study guides need to be written and presented in a format that makes the contents readable and clear. They must contain all the relevant information (objectives, competencies, educational methods or activities, sequencing of activities, assessment methods).
- 2.4 The activities should be sequenced so that students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability. Concerns that the current sequencing of the activities in the middle and theory blocks may impact on the students' results were included, and this was investigated using methods suggested under area 7.
- 2.5 Community based education was considered to be a modern educational principle and primary health care a core component of health delivery systems. Students thus should be placed in clinical community rehabilitation settings for Rehabilitation programme activities.
- 2.6 Clinical placements should support and not burden the community rehabilitation resources. Resources included the facilities, staff, patients and their carers.
- 2.7 Mandatory to the Rehabilitation programme should be the exposure to inter or multi-disciplinary team work. It was preferred that exposure to team members should occur in the rest of the curriculum as well.
- 2.8 It was mandatory that students observe doctors functioning within inter or multi-disciplinary teams during the Rehabilitation programme. It was preferred if this occurred during other programmes in the curriculum.
- 2.9 The Rehabilitation programme should provide an opportunity for students to acknowledge and explore attitudes towards teamwork. A question raised in the

literature review was the value that students place on teaching by members of inter or multidisciplinary rehabilitation teams. This was explored under this indicator.

- 2.10 Inter personal communication was a general education principle but critical to rehabilitation practice so should be addressed during the activities of the Rehabilitation programme.
- 2.11 It should be mandatory that medical students have an opportunity to socialise with other disciplines formally during educational activities. It was preferable that they also socialise informally e.g. on campus or in their private time.
- 2.12 Students are trained for their future role in primary health care so they should identify with, through observation, the role that GPs have in managing persons with disabilities in the community. The literature posed conflicting perceptions of patients and GPs as to the roles and functions of the doctor in the community. This was investigated together with this indicator.
- 2.13 Students should be taught to manage persons with disabilities as they move through all levels of the continuum of health care i.e. in primary, secondary and tertiary care, in acute, post acute and chronic care, in the public and private sector, in specialised ambulatory (community) and residential (in-patient) rehabilitation settings.
- 2.14 Reasons were given in the literature review why doctors may have poor attitudes to persons with disabilities Students thus need to be given an opportunity to reflect on these personal attitudes. The researcher was also curious to know the direction of this attitude so the value that students place on teaching by persons with disability was also evaluated. Although contact opportunities are provided with persons with disabilities in the programme, students exposure otherwise was explored as this was reported to effect attitudes.
- 2.15 Horizontal integration of teaching across a curriculum was considered a modern educational principle. As this may be beyond the control of the Rehabilitation programme the application of rehabilitation knowledge to other medical specialities during the curriculum was preferable. As much of the literature was internationally based where PM&R is a registered speciality and there was limited reference to integration of rehabilitation training across curricula, preferences regarding integration was further evaluated in this study.
- 2.16 Management of persons with disabilities calls on a wide range of knowledge and skills which cannot all be delivered within the confines of a Rehabilitation programme or covered to the extent that can be within other speciality programmes. Students are thus

required to apply knowledge, skills and attitudes acquired in other medical specialities to manage persons with disabilities in the Rehabilitation programme.

- 2.17 Evidence based practice, problem solving, critical thinking and clinical reasoning should be used to make students responsible for their own learning.
- 2.18 To facilitate vertical integration of a curriculum the programme should require students to draw on learning in basic medical sciences in order to manage persons with disabilities.
- 2.19 A certain degree of repetition is required within a programme or curriculum to reinforce learning however there should not be unnecessary repetition of content within either.
- 2.20 Electives in rehabilitation should be offered but as these are dependent on clinical resources and beyond the control of the department organising the programme, this was preferable.

3.3.2.2 Area 2b: Educational programme: content

The content of the Rehabilitation programme should be relevant to the clinical environment in which the medical graduates will practice, which in SA is the primary health care setting. These indicators are listed as 2.21 – 2.25.

- 2.21 Literature on disability and rehabilitation was found to frequently refer to the ICF which provides a meaningful picture of health. As discussed in the literature review it provides a framework against which the definition of disability and rehabilitation should be taught.
- 2.22 A list of health conditions based on SA and international literature was compiled. It was expected that students should be taught the rehabilitative management of these conditions. This list was however based on specialised rehabilitation services due to limited data from generalist and community sources. The completeness and appropriateness of this list in the local health context (WC, SA) was explored against this indicator in this study. The full list used in this study was; stroke, head injury, spinal cord injury, TB related neurology, HIV related neurology, psychiatric conditions, amputation (traumatic or vascular), visual impairment (irrespective of cause), intellectual impairment, cerebral palsy, poly-trauma.
- 2.23 A list of bio, psycho and social needs of persons with disabilities based on the literature and the researcher's experience was compiled. It was expected that these be addressed in the programme. Again this list was verified as to completeness and appropriateness. The full list used in this study was: medical management of the

condition (re-boarding of medication, medical stabilisation), pressure sores, pain management, circulation problems and deep vein thrombosis, bladder problems, bowel problems, sexual dysfunction, needing dietary advice, needing assistance with self care, needing assistance with mobility or requesting assistive devices (issue or repair), needing advice regarding return to school or work, feeding and swallowing problems, visual problems, communication problems and speech difficulties, cognitive and perceptual problems, interpersonal relationship issues, coming to terms with being disabled, patient and carer education, needing help with transport or getting to work/shops/church/etc, application for financial benefits (disability or insurance claims), patient and carer support .

- 2.24 The various models of care (e.g. medical, social and bio psychosocial models) highlighted the need for students to be taught how to manage the needs of persons with disabilities through medical and trans-disciplinary management, inter or multidisciplinary referral and use of community resources. The details of each of these management approaches were further explored along with this indicator.
- 2.25 Students should be taught a generic approach to disability management so that they can manage any health condition causing disability.

3.3.3 Area 3: Assessment of students

The original two WFME standards were expanded to nine to incorporate the various aspects of student assessment identified in the literature.

- 3.1 The assessments should be valid in that they test the programme's stated objectives.
- 3.2 To prevent inter and intra assessor variability, scoring criteria should be used. This improves reliability of assessments. Global rating scales should be used.
- 3.3 A variety of assessment methods should be used. This list obtained from the literature was verified for completeness and appropriateness in this study. The full list used in this study was: oral testing of theoretical knowledge, oral based on a case study, MCQ/short answer, essay testing of theoretical knowledge, essay based on case study, portfolio/patient write up, student being observed while assessing a patient, presentation to assessor and class, in course assessment by facilitator (attitude, participation), assessment by fellow students.
- 3.4 The assessment methods need to be feasible in relation to resources such as finances, time, staff, equipment, venues and patients.

- 3.5 OSCEs are a widely accepted assessment method. Standardised patients should be used and they should assess attitudes of students.
- 3.6 In line with Bloom's taxonomy, understanding rather than recall should be assessed to ensure longer term retention of programme content.
- 3.7 Feedback should be provided on assessments conducted during or at the end of the programme.
- 3.8 Pre and post exposure assessments should be conducted to provide insight into the gain in knowledge, skills and attitudes during the Rehabilitation programme.
- 3.9 Students need to be made aware of the pass requirements for the assessments.

3.3.4 Area 4: Students

Four of the WFME standards in this area were rearranged into four new indicators which related to the enrolment of students and their role in feedback on the programme. The third, student support and counselling, was omitted as, although relevant to the curriculum did not have specific relevance to the programme under evaluation.

- 4.1 The enrolment of students with disabilities is preferable as this is under the control of the faculty and the university and not the programme. Enrolment is evident by the presence of students with disabilities in the MBChB curriculum and thus in the Rehabilitation programme. Disabilities may be overt to an observer or may be insidious and known only to the individual with the disability. If there are students with disabilities, this should result in doctors with disabilities. The presence of these doctors in clinical practice was enquired of the study participants. A question raised by the literature review was the tendency for doctors with disabilities to follow a career in disability and rehabilitation. This was explored together with this indicator.
- 4.2 Attitudes of students may be influenced by exposure to other students who have disabilities so within the FHS medical students should be exposed to other students with disabilities either in teaching environments or socially within the campus environment. This would imply that students with disabilities should be enrolled for the various degrees offered by the FHS.
- 4.3 Students have different learning styles, but should on the whole be satisfied with the various rehabilitation teaching methods.
- 4.4 Students should be satisfied with the resources used to deliver the programme. This includes the proficiency of teaching staff as clinicians and lecturers and quantity and quality of clinical teaching sites.

3.3.5 Area 5: Academic staff

The two WFME standards ascertaining staff recruitment and development were expanded to five indicators for this study.

- 5.1 All disciplines involved in rehabilitation of the disabled should be involved in the delivery of the programme. The list used in this study included: physiotherapy, occupational therapy, speech therapy, social work, clinical psychology, rehabilitation doctor, rehabilitation nurse, dietician. This list obtained from the literature and the researcher's experience was verified for completeness and appropriateness in this study.
- 5.2 The WFME standards referred to reward of staff involved with the programme. Suggestions in the literature included financial and academic rewards, recognition, altruistic reward, or professional stimulation. In addition other methods acceptable to reward staff were explored.
- 5.3 As those delivering the programme may not receive financial reward it is important that they are not burdened by the programme. Time spent on preparation for lectures or contact sessions, preparing and marking assessments should not compete with clinical or personal time. Costs incurred for travelling and teaching materials should not come out of their own pockets.
- 5.4 The staff should be trained in educational principles in order to educate, facilitate, site co-ordinate and asses knowledge, skills and attitudes. They should be clinically proficient and have appropriate attitudes and personal attributes such as compassion, objectivity, commitment, humour, communication skills, appreciation of student strengths and weaknesses, conducive to lecturing and facilitation. Specific training needs of current staff were identified in this study.
- 5.5 Training should be ongoing and this can be achieved though giving lecturers, site co-ordinators, facilitators and assessors feedback on their performance.

3.3.6 Area 6: Educational resources

Resources need to be available to match the teaching methods and activities. This includes physical and human resources as available in the faculty and managed by the department delivering the programme. Six of the WFME standards in this area were rearranged into eight indicators. The fourth standard called for a medical school policy on research, linking it to education. This was considered covered by indicator 2.17 above.

- 6.1 The department delivering the programme needs to have adequate number and quality of resources such as staff, clinical teaching sites, library resources, finances and equipment to deliver the programme.
- 6.2 The department delivering the programme should allocate financial and human resources to the MBChB programme proportionately according to its other activities.
- 6.3 The programme should be costed and have a dedicated budget.
- 6.4 Patients should be involved in delivery of the Rehabilitation programme. This can be as case subjects or as experts in disability and rehabilitation. Involvement should be acceptable to all stakeholders e.g. the patients themselves and students as mentioned in indicator 2.14.
- 6.5 In line with problem based learning resources need to be made available for self-directed rehabilitation learning.
- 6.6 Apart from resources available within the department, use should be made of faculty resources e.g. IT to deliver the programme. To expand the options extracted from the literature, other resources available in the faculty for undergraduate teaching as well as the most useful were explored in this study. The full list used in this study was: Web CT, skills laboratory, library, Microsoft Power Point© lecture notes, narrative lecture notes, direct contact with lecturers/facilitators.
- 6.7 There should be access to educational expertise to develop the programme. A question raised in the literature review was the exposure of SA MBChB under graduates to disability and rehabilitation training. This was explored under this indicator.
- 6.8 To link in with international literature the question of exchange with local and international universities for the benefit of the programme was established.

3.3.7 Area 7: Programme evaluation

This area tied in with the core aim of this study and included ongoing monitoring of the programme. This study intended to evaluate the inputs, processes and outputs of the programme and not the outcomes of the programme, however such evaluation of all aspects needs to be in place. The original four standards were condensed into two and the role of students in programme evaluation was expanded on.

- 7.1 The inputs, processes, outputs (student results) and outcomes of the programme need to be monitored on an on-going basis.
- 7.2 A selection of stakeholders (faculty and departmental management, curriculum committees, programme co-ordinators, students, teachers, public, future employers,

etc.) as listed in the literature should contribute to programme monitoring and evaluation. Input should be made into objectives, delivery, content, assessment methods, student selection, staff selection and training, educational resources, evaluation of the programme, governance and administration and review of the programme. The list of stakeholders was explored in this study. The full list used in this study included FHS managers (including curriculum and programme committees), module chair persons, CRS managers, rehabilitation lectures, site co-ordinators, facilitators and assessors, medical students, rehabilitation experts, patients.

- 7.3 Students should provide feedback regarding aspects such as the content, quantity and quality of teaching, the assessment methods used, sequencing of activities, resources used and usefulness, achievement of programme objectives and achievement of their own expectations of the programme.
- 7.4 Feedback however should not overburden students.

3.3.8 Area 8: Governance and administration

The WFME listed five standards in this area. The first, governance was considered not applicable to the evaluation of a programme. The third, budget and resource allocation was considered included with 6.2 and 6.3 above. The remaining three were retained and are presented here as four indicators referring to the department designing, delivering and reviewing the programme rather than the medical school responsible for the curriculum as a whole.

- 8.1 The Rehabilitation programme should be co-ordinated by a committee rather than an individual.
- 8.2 The co-ordinator(s) should have a passion for the programme and drive its delivery and development.
- 8.3 There should be a good relationship between the department that delivers the programme and rehabilitation services and clinical sites where students are placed.
- 8.4 There should be adequate administrative support for the programme from the responsible department.

3.3.9 Area 9: Continuous renewal

The last WFME standard was expanded into two statements which refer to the practical application of these indicators and data required for ongoing monitoring and evaluation.

- 9.1 The programme should be evaluated at pre-determined intervals.

- 9.2 The results of these evaluations are presented to the stakeholders as a report and to decision making structures.

3.4 Chapter summary

In this chapter the process of developing a set of indicators was described. The literature search uncovered the WFME global standards for medical education which was designed for evaluation of a curriculum. The format provided a framework for evaluation of a programme on which most of the original 36 standards and further literature was hinged. Four standards were considered inappropriate for the evaluation of a programme rather than a curriculum for which they were intended. No new themes were added to the remaining 32 standards but more detail enriched these standards resulting in a set of 65 indicators for this study.

The body of this chapter listed and briefly described these indicators arranged in the nine areas according to the WFME global standards for basic medical education. Linkage to the original standards was made and the focus of each area was established. Reference was made to the themes being further succinctly summarised as a set on indicators in appendix 6b.

This set of indicators was the measure against which the MBChB Rehabilitation programme of the CRS, FHS, US was assessed for compliance using the methods and tools which are described in the following chapter.

Chapter 4
Methodology

4.1 Introduction

The aim of this study was to evaluate the Rehabilitation training programme of the MBChB curriculum of the US and to make suggestions for its improvement. Critical indicators have been identified in chapter 3 according to the frame work of the WFME global standards for basic medical education. In this chapter the research methodology used for this study is presented.

The study design is first discussed providing the approach used in this study. Secondly study populations directly or indirectly involved with the programme from different perspectives are discussed. From these populations the selection of samples is presented. The methods chosen for this study were in depth interviews and structured questionnaires and individual tools were developed for each population to address objective 2.

From nine populations of direct and indirect stakeholders samples were selected using various methods. Tools developed were two in-depth interviewing schedules to obtain qualitative data and four questionnaires to obtain quantitative data from different direct stakeholder groups to provide a measure of compliance of the programme with the indicators as well as recommendations for improvement to the programme. Five questionnaires were also designed to obtain quantitative data from indirect stakeholder groups to verify the indicators developed for this study. Administration of the tools was by electronic mail (e-mail) preceded by telephonic contact or through direct contact with the participants.

This chapter further describes the process of analysis of data obtained from the samples as well as student results. Before final recommendations regarding the compliance of the programme with the indicators and the suitability of the indicators for this study were made, the interpretation of the analysed data was reviewed by educational and rehabilitation experts. The chapter concludes with ethical considerations and rigour related to this study.

4.2 Study design

The study was undertaken as the MBChB Rehabilitation programme had never before been evaluated. A descriptive study design was considered appropriate, providing a cross-sectional view of the programme.

A conceptual model based on pre-existing understanding of the influences on the programme was used to explore the literature to develop a comprehensive set of indicators. In expanding on the WFME Global Standards for basic medical education (website accessed 24/08/2007) as a framework for the indicators, the HEQC criteria for programme design (2004) was explored. These criteria were arranged according to the Logic Model provided in figure 4.1, which is considered a useful monitoring and evaluation tool to assess all components of a programme (University of Pretoria (UP), 2009).

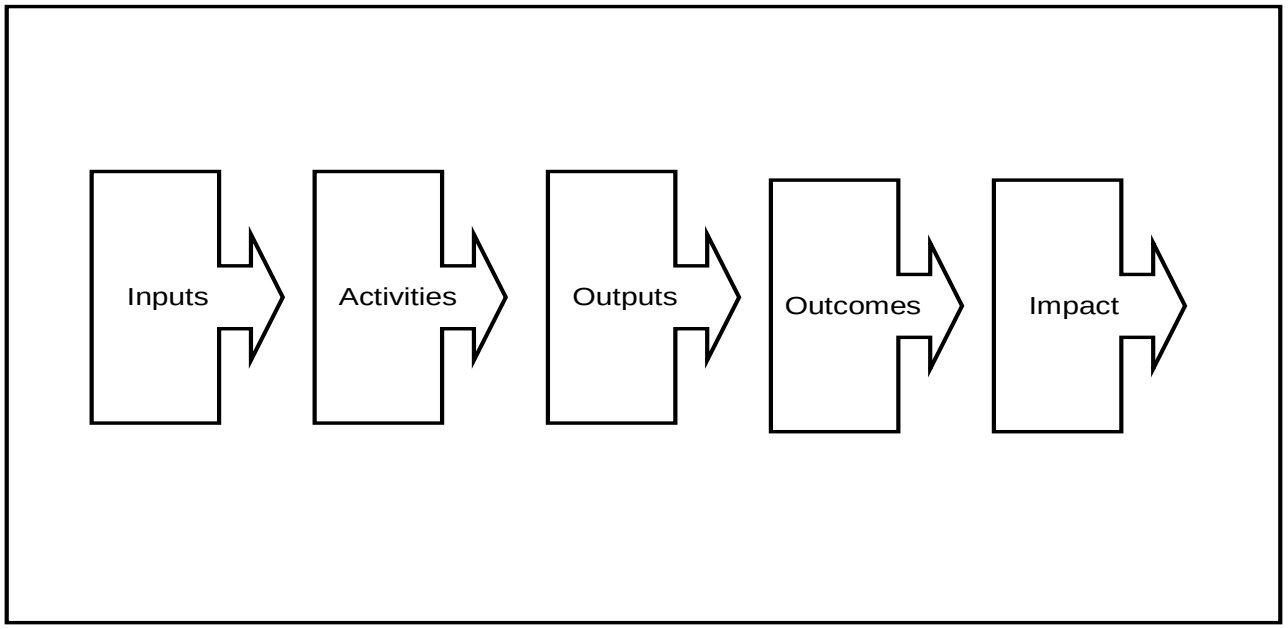


Figure 4.1: The relationship between the components of a programme

Evaluation according to a logic model provided a framework for developing subsequent work plans based on the results of the study. This structured approach would also facilitate communication with stakeholders regarding the activities and components of the programme. Figure 4.2 shows how the indicators developed for this study were aligned with the Logic Model.

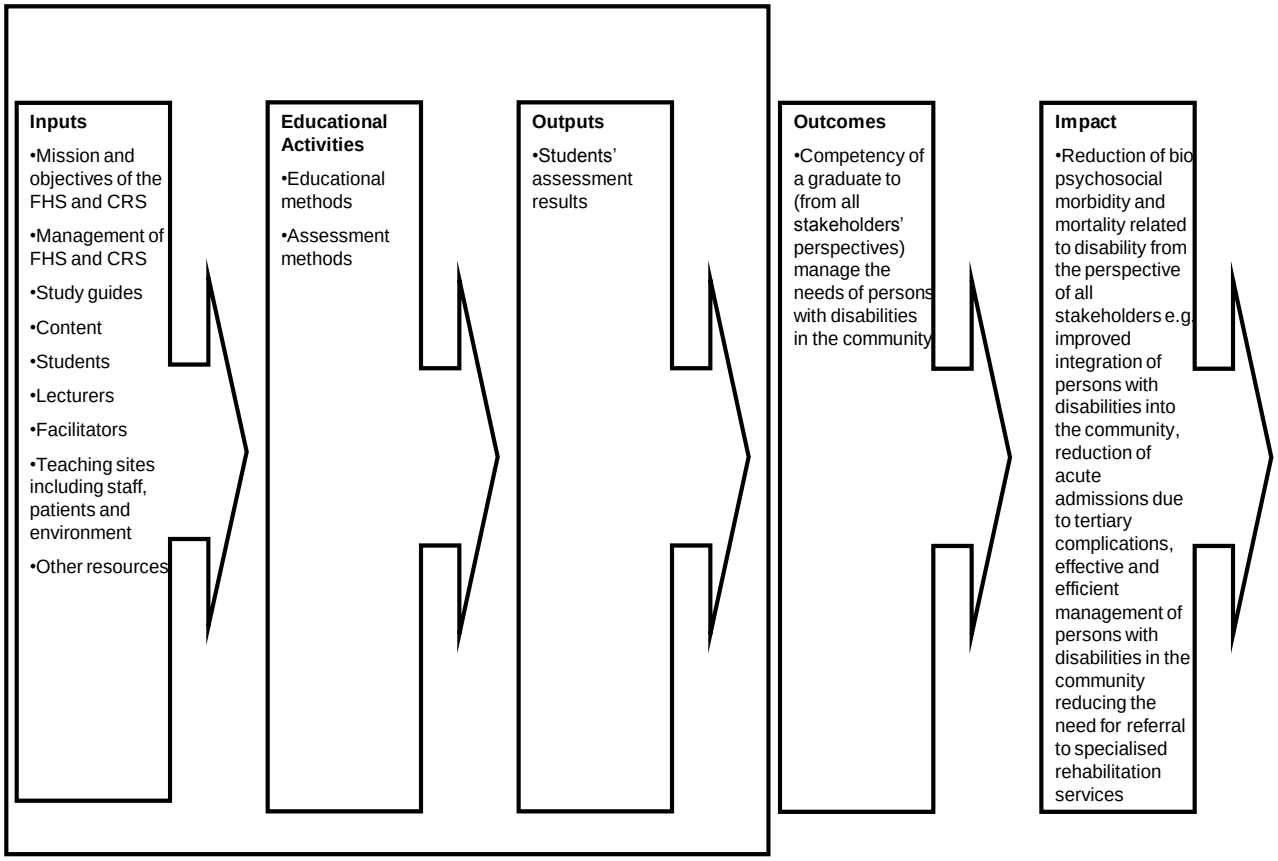


Figure 4.2: The evaluation of the MBChB Rehabilitation programme using the Logic Model

As can be seen from the figure the programme uses inputs to drive activities which provide quantifiable short term measurables (outputs). Together over time these outputs produce the outcome which can be measured against the original aims and objectives of the programme. If the outcome is achieved with many students over time there is a potential to have a wider and long term impact. Van Zyl, (1995) was of the opinion, through casual observation, that the outcomes of the preceding programme had been achieved, as US MBChB graduates were able to initiate rehabilitation management programmes and make appropriate referrals. The researcher was of the opinion that outcomes of the programme implemented in 2001 were also being achieved based on observance of recent US graduates making appropriate referrals to WCRC. As the outcome may wane over time and be influenced by variables outside of the programme (UP, 2009) this was drawn outside the box in figure 4.2. The impact is also subject to other variables and so the outcome and impact were considered beyond the scope of this study.

This study thus evaluated the components of the programme (inputs, activities and outputs) according to specifically designed indicators in a cross sectional manner. At the

time of data collection, the researcher was involved in the DoH National Core Standards (NCS) audit where a similar study design using a set of indicators was used to evaluate the DoH services.

4.3 Description of study populations and selection of samples

There are a number of populations who interact directly and indirectly with the Rehabilitation training programme. As they do not exist in isolation of each other, an overview of these nine populations is first given, followed by a more detailed description of each and how samples will be selected from each. Their relationship is depicted in figure 4.3 below.

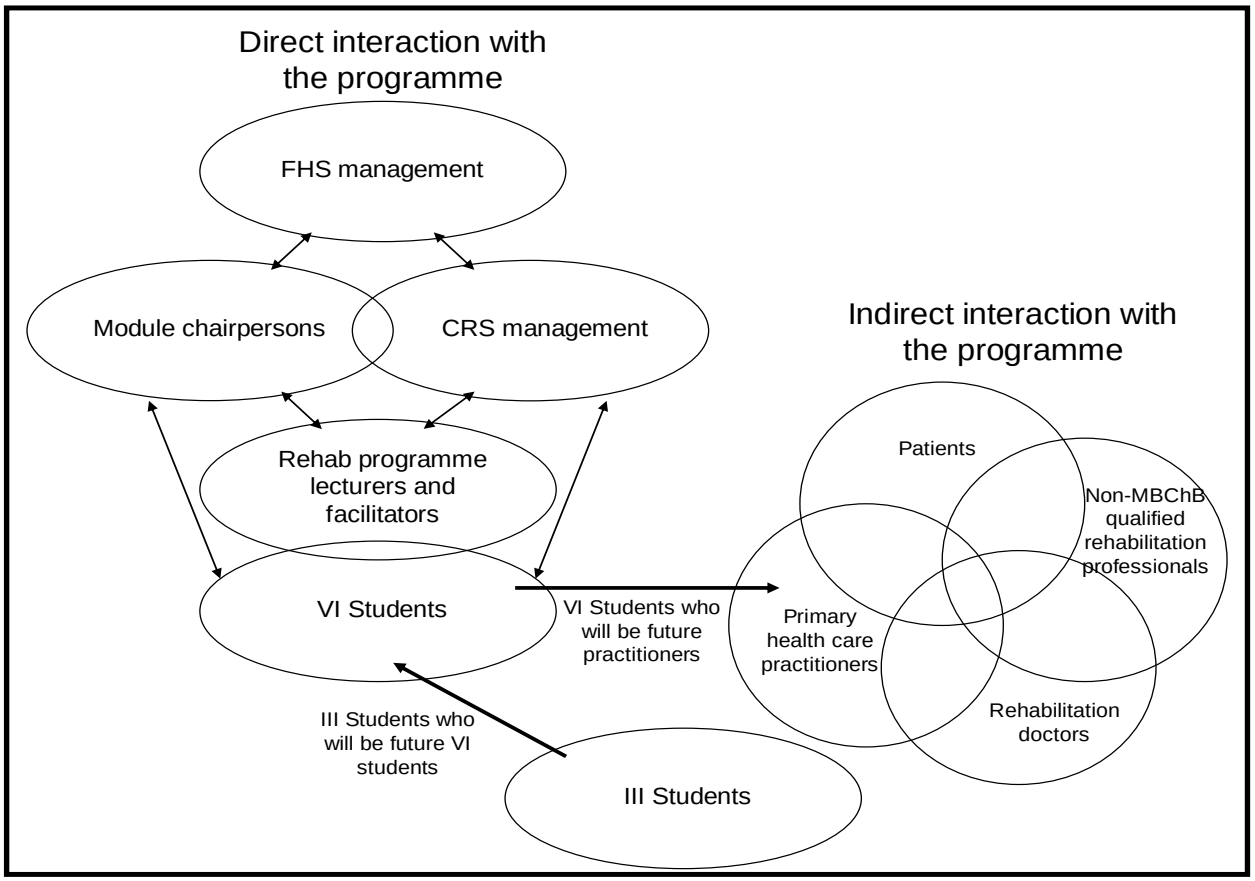


Figure 4.3: The relationship between direct and indirect populations and sample groups identified for this study

When considering evaluating the MBChB Rehabilitation programme of the US the students receiving the training and the lecturers providing the training immediately sprang to mind as primary stakeholder groups. Two groups of students were relevant to this study: the sixth year students (VI) who have experienced the programme and can comment on its performance, and the third (III) year students who have not yet experienced the

programme. Where the former were directly involved, the latter could not pass opinion on the programme but could have opinions which could influence the future of the programme and were thus indirect stakeholders at this stage of their training.

As the MBChB Rehabilitation programme of the US is delivered by the CRS in modules together with other divisions, the CRS managers and module chairpersons provide input to and receive feedback from these primary programme participants (students and lecturers). As part of the larger curriculum, the CRS and module chairpersons are accountable to faculty administrators who were thus considered further direct stakeholders and were included as study populations.

Where rehabilitation is a recognised speciality in the international arena, specialists in PM&R are responsible for the content and delivery of the medical undergraduate rehabilitation programmes (Gutenbrunner, Ward & Chamberlain, 2007). In SA doctors, both generalists and specialists who work in the field of rehabilitation, although not responsible for the programme of the US, could provide similar insights.

At the US, the programme aims to equip doctors to manage persons with disabilities in the community in SA. Once qualified, these students will become members of a population of doctors practicing at primary health care. Doctors (GPs) practicing in this environment (public or private) could provide insight into the programme's desired outcomes as indirect stakeholders.

Non-MBChB qualified rehabilitation professionals (therapists, social workers, dieticians, clinical psychologists, rehabilitation nurses) who have had clinical experience of working with persons with disabilities and interact with GPs in multidisciplinary teams could also offer opinion on what the graduate's competencies should be. These three professional groups (rehabilitation doctors, GPs, and non-MBChB qualified rehabilitation professionals) who do not interact directly with the programme but could provide perspective on its content and delivery, formed indirect study populations. They thus could not contribute to the evaluation of the programme, but their input could verify the indicators.

The outcome of the programme would be evident in how persons with disabilities in the community are managed. Persons with disabilities who have received treatment at primary health care facilities were thus considered as a further indirect study population.

It was intended that this diverse range of populations from educational managers to persons with disabilities would provide a wide and complementary perspective on an encompassing list of indicators to evaluate and develop a programme that is acceptable to all stakeholders. The past experience of the stakeholders with the programme and disability was envisioned to add depth to this cross sectional study.

From these populations who are directly or indirectly involved with the programme, sample groups were drawn according to inclusion criteria. The credibility of the respondents was influenced by their years as a member of the particular population. In some instances a single individual fell into two populations for example the CRS manager is also a lecturer and some of the module chairpersons are GPs. Rehabilitation professionals fell into the indirect populations but some were also involved as lecturers and facilitators in the directly involved populations. Instruments were administered to these individuals as members of samples of the most relevant population. For this reason representivity of involvement in the various modules and educational roles as lecturers, site co-ordinators, facilitators and assessors and of various team members, was considered not only within the sample but also across the whole study of which a detailed summary is available in appendix 16a-c.

4.3.1 Management FHS, SU

4.3.1.1 Study population

Although the CRS is independently responsible for the development and implementation of the Rehabilitation programme, it is accountable to the curriculum committee so that the Rehabilitation programme aligns with other programmes within the curriculum, contributes appropriately to the mission of the faculty as contained in the Profile of the Stellenbosch Doctor and conforms to managerial principles of the FHS and the US.

The top management structure of the US, FHS in November 2010, when populations were identified and samples were selected, included the Dean, three Deputy Deans and the managers of 16 Centres that have transversal functions. Furthermore there were the managers of the ten Departments, six having further divisions. The CRS was listed twice both as a Centre but also as a division of the Department of Interdisciplinary Health Sciences, together with Community Health and Family Medicine and Primary Care (US website accessed 08/11/2010). For the purpose of this study the CRS was considered with the latter, which left 15 Centres.

Of the top management structure, the Head of the CRS indicated that two directly influence the Rehabilitation programme of the MBChB curriculum, namely the Head of the Centre for Clinical Education (CCE) and the Deputy Dean: Education. This population thus comprised these 2 managers.

4.3.1.2 Study sample group

The two managers in this population were purposefully selected as sample participants as they have a broad understanding of the strategic framework of the faculty and teaching across the whole MBChB curriculum. They should be familiar with the opportunities and restraints imposed by policies, strategic and operational issues within the university through their involvement in curriculum committees, financial and resource allocation. Information on these aspects was called for by the WFME standards and provided perspective when suggestions for improvement were made at the end of this study. Involvement of senior officials of the university provided an opportunity for them to broaden their understanding of the Rehabilitation programme thus potentially benefiting the programme through enabling them to make better informed decisions. In-depth interviews were planned for this sample.

The Head of CCE was contacted telephonically during the development of the questionnaires and was interviewed on the date arranged (23/02/2010). After this interview it was realised that all of the questions relating to the relevant indicators had been answered by this person, it was then deemed no longer necessary to formally interview the second manager, the Deputy Dean: Education. The researcher however could not establish from the CRS or module chairs if consent over and above ethical approval was required to involve medical students in the study. Telephonic contact with the Deputy Dean was made on 18/04/2011 to inform her of the study, to establish approval for involving medical students. Further comment on the Rehabilitation programme was invited but none was given.

4.3.2 Module chairpersons (of the combined Rehabilitation, Family Medicine and Community Health programme)

4.3.2.1 Study population

All the rehabilitation activities of the programme are taught in modules shared with Family Medicine (clinical rotations) and Community Health (clinical and theoretical modules and

OSCE). There is one chairperson for each of the three clinical and one theoretical module and there is a co-ordinator for the OSCE exam who also oversees the three clinical modules. This totals five chairpersons in this population.

These individuals have an in depth understanding of the logistical issues pertaining to the delivery of the particular modules that they chair. The clinical chairs have had regular contact with the site co-ordinators and have an overall perspective of the integration of the Rehabilitation programme activities with the other divisions' activities and outcomes. As with faculty management it was expected that the chairpersons should be able to provide a frame of reference for suggested improvements to be made at the end of this study and involvement in this study would equip them to make better informed decisions.

4.3.2.2 Study sample group

As there is only one chairperson for each phase, module or exam, all five of the population were purposefully selected to complete a questionnaire. After telephonic contact, self administered questionnaires were distributed by e-mail. Telephonic and e-mail follow up ensured that all five participated. The module chairs have been involved with the programme for between five and ten years. Two module chairs were also site co-ordinators, one of whom had also assessed the rehabilitation component of the mid phase rotation.

4.3.3 CRS management

4.3.3.1 Study population

The US MBChB rehabilitation programme is administrated and funded by the CRS. As this programme is only one of the Centres's activities resources need to be allocated consistently and equitably amongst all of these. This is the responsibility of the Head of the Centre.

The CRS and its Head is also responsible for the delivery and maintenance of the Rehabilitation programme. This was initially assigned to the only other permanent professional staff member of the CRS, but had been handed over to a professional who is contracted as the MBChB RPC since 2009. A further contracted staff member had been involved in the development of the rural mid phase component of the Rehabilitation programme for one year at the time of this study.

The RPC is concerned with the logistical and administrative running of the programme across all the modules and the OSCE and can offer a different perspective compared to the module chairpersons as represented schematically below.

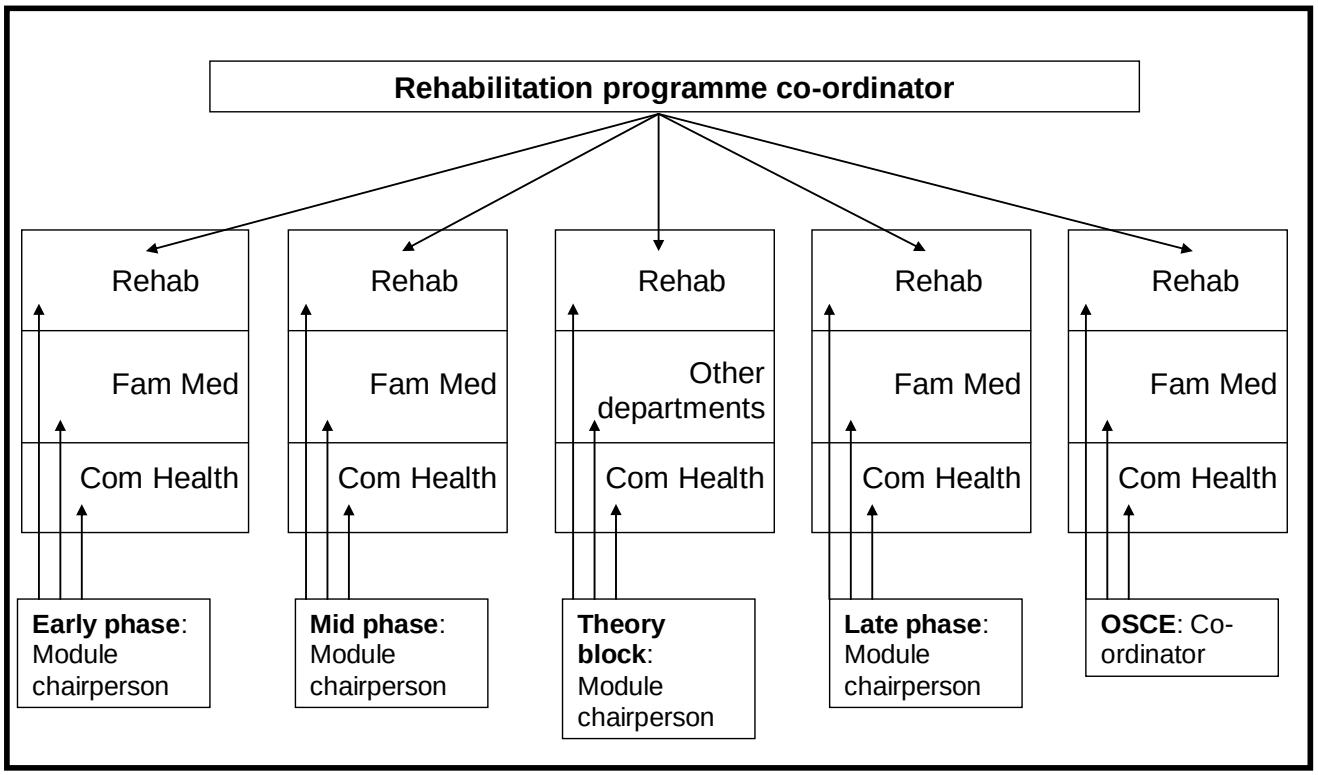


Figure 4.4: The involvement of the RPC and the individual Module chairpersons in the Rehabilitation programme.

This population thus consisted of the Head of the CRS, one full time staff member and two contract staff members all of whom have had direct influence on the MBChB Rehabilitation programme.

4.3.3.2 Study sample group

All four individuals of the study population were included in this sample. Two of the four, namely the Head of the CRS and MBChB RPC were considered critical respondents as they were both involved with the whole undergraduate programme. It was anticipated that their perspectives may differ as the Head had been involved with the programme since 2002 (after its initiation in 2001) and is responsible for both under and post graduate programmes, whereas the RPC has been involved since 2008 and is only responsible for the undergraduate MBChB programme. The Head also has had jurisdiction over the allocation of resources, where the co-ordinator could only recommend these. The Head again has responsibility for all activities of the Centre where the RPC has the

undergraduate programme interests solely at heart. In the researcher's opinion they both have a realistic and passionate interest in the programme.

All four were e-mailed questionnaires after telephonic contact was made. Both critical respondents returned questionnaires as well as the contract staff member involved with the rural mid phase rotation. These three individuals were collectively involved in all modules of the programme including the OSCE as lecturers, facilitators and assessors.

In addition the Head of the CRS was purposefully selected for an in-depth interview (conducted on 06/11/2011) to discuss the indicators over which she has sole discretion, for example governance of the programme and collaboration on a wider platform within the faculty.

4.3.4 Lecturers, site co-ordinators, facilitators and assessors (of the MBChB Rehabilitation programme, CRS, FHS, US)

4.3.4.1 Study population

This population concerned itself with the lecturers, site co-ordinators and facilitators who deliver the Rehabilitation programme through direct student contact. It also included those involved in the assessment of the students at the end of their clinical and theoretical modules and the sixth year OSCE. It included medical doctors and professional rehabilitation team members as well as persons with disabilities who considered themselves to be experts on disability and rehabilitation. Although one person may have had different roles in different modules, they were included in the most relevant one for the purposes of defining the population.

The lecturers involved in the programme at the beginning of 2011 shortly before data was collected were as follows; one lecturer providing didactic teaching at the beginning of the early phase rotation and 16 lecturers in the theory block. This population of lecturers included the RPC, the Head of the CRS (both included in the previous population), the researcher, two rehabilitation doctors who were included in that population and 12 others who were not included in any other population in this study. Of these 12 lecturers four were professional staff employed by other divisions at the FHS, US, six worked in public and private clinical rehabilitation practice, and two were persons with disabilities as experts in the field of disability and rehabilitation. These 12 were considered as the lecturer population.

During the mid and some of the late phase clinical rotations at the rural sites, Family Physicians co-ordinate the integrated learning programme of the three divisions. They impact on the Rehabilitation programme through direct teaching and role modelling. These MFam Med graduates are well supported by the Division of Family Medicine, seven of whom share joint appointments between WC DoH and US. Some of these physicians have received training in rehabilitation principles and have applied this knowledge not only to student training but also in their clinical practices.

At these sites members of the multidisciplinary team identify patients for the students and discuss the rehabilitation plan with them. According to the Family Medicine undergraduate secretary eight rural sites (Ceres, Worcester, Robertson/Montague, Bredasdorp/Swellendam, Caledon/Grabouw, Hermanus, Madwaleni and Malmesbury) were used on a rotational basis during 2010. The population of site-co-ordinators for the mid phase was thus these eight Family Physicians. On contacting these co-ordinators, six facilitators could be identified at these mid phase sites.

In the early phase rotations of 2010 seven social workers at WCRC and two therapists at Bishop Lavis facilitated patient case discussions. Late phase rotations in 2010 were facilitated by three staff contracted by the CRS, one being the RPC, one the researcher with only the remaining one being included in this population. Thus 16 individuals made up the population of facilitators.

At the end of each rotation and in the OSCE students are assessed by members already mentioned in this population.

This population of 36 individuals as summarised in table 4.1 below, included medical professionals and experts in the field of disability and rehabilitation. These individuals have had limited opportunity to influence the programme other than those involved in developing the interdisciplinary learning session. Over and above content and mode of delivery of the programme, the sample from this population was asked to provide insight into their recruitment, selection, training and development as a lecturer.

Table 4.1: Members of the population of lecturers, site co-ordinators, facilitators and assessors. (Those marked with an * are excluded due to inclusion in other populations, RP = Rehabilitation Professional)

	Early phase	Mid phase	Late phase	Theory block	OSCE	Total
Lecturers	RPC*	0	0	4 academic RP 6 clinical RP 2 persons with disabilities Head CRS* RPC* Researcher*	0	12
Site co-ordinators	0	8 Family Physicians	0	0	0	8
Facilitators	7 WCRC Social workers 2 RP at Bishop Lavis	6 RP	1 RP RPC * Researcher *	0	0	16
Assessors	RPC*	Researcher*	RPC* Researcher*	Researcher*	RPC * Researcher *	0
TOTAL	9	14	1	12	0	36

4.3.4.2 Study sample group

From this population 30 prospective participants were purposefully selected as they were telephonically available from the data bases of theory block lecturers, clinical site co-ordinators and facilitators and contracted staff of CRS. The remaining six were excluded on the basis of lack of contact details or unavailability at the time of conducting this study.

Critical representation in this sample was considered to be:

- Representation of all roles (lecturers, facilitators, site co-ordinators and assessors) and
- Representation of each module (early, mid, late and theory modules)

Representation from all the rural sites was not considered to be critical and all but two (Malmesbury and Madwaleni) were represented in this study. Sen Gupta, Hays, Kelly and Buettner (2010) assessed the results of students attending different rural sites. They found no difference in the results of the different groups and suggested that despite slight differences in activities and exposures, different sites could offer equivalent learning experiences and outcomes.

All sample participants were contacted telephonically after which self administered questionnaires were distributed by e-mail. 19 of the 30 (response rate 63%) responded of which one response was unsuitable for analysis as will be explained later in this chapter. All modules and educational roles were represented the details of which are contained in appendices 16aandb. All respondents were GPs or rehabilitation professionals except one who was a carer of a person with a disability, a rehabilitation advocate and supplier of assistive devices.

Six of the eight WCRC Social Workers, who contributed largely to the early phase rotation, eagerly responded. The Family Physicians as site co-ordinators and other disciplines as site facilitators in the rural rotations were also very eager to participate in the evaluation of the Rehabilitation programme, however only 50% of them responded, despite follow up.

The respondents were involved with the programme for between zero and 13 years. One noted that they were not involved as they only provided patients for students. As discussed with respondents, this was considered to be the role of the facilitator and as the person had been in this position for two years, the data was amended accordingly. One respondent stated that they had been involved for 13 years which is longer than the time that the programme under review has been running. After contacting the individual this was adjusted to 11 years. The mean length of time involved with the programme for this sample using the adjusted data was five years. The clinical experience of this sample was 14 years with a range of 1-40 years.

4.3.5 Students (enrolled in the MBChB curriculum of the FHS, US)

4.3.5.1 Study population

The target group for the training programme is the enrolled MBChB students of US who receive rehabilitation training in four exposures over their third to sixth years. The 180 students per each academic year are divided into small groups which receive their exposures consecutively throughout the year as outlined in table 1.1 in chapter 1. The programmes are delivered in phases that do not necessarily coincide with academic years. Thus at any point in time some students may have received an exposure and other students from the same academic year may not have. There may be a difference of up to 18 months between two students in the same academic year receiving the same exposure.

Thus seven groups within this population were identified according to their exposure to the various phases, modules and activities as tabled below.

Table 4.2: Sequential exposure of US MBChB students to rehabilitation activities

Phase	Early	Mid	Theory	Late	OSCE
Year of MBChB study	3rd	4th or 5th	5th	5th or 6th	6th
Group 1	No	No	No	No	No
Group 2	Yes	No	No	No	No
Group 3	Yes	Yes	No	No	No
Group 4	Yes	No	Yes	No	No
Group 5	Yes	Yes	Yes	No	No
Group 6	Yes	Yes	Yes	Yes	No
Group 7	Yes	Yes	Yes	Yes	Yes

Group 1

US students in their first and second MBChB year have not yet been exposed to the Rehabilitation programme, but have however received an introduction to the ICF as part of their professional orientation in first year. They receive their first exposure to the rehabilitation programme during their third year. For the purpose of this study the approximately 180 students in their third year who had not yet received their first Rehabilitation exposure were considered as population group 1. They could not comment on the delivery of the programme under review but it was anticipated that they had untainted views of what the programme should deliver and thus could contribute to the review of selected indicators.

Groups 2-6

In order to gain students' opinions on the programme content, delivery and student evaluation methods, their input should be gained as soon as possible after exposure to each phase. As described in the introduction, feedback questionnaires pertaining to the delivery of the programme are completed at the end of each clinical rotation and the theoretical module and summarised by the respective Module Chairs and RPC. These Module Chairs and RPC were requested to consider this feedback which has been provided from groups 2-6 when they participated in this study. These population groups were thus not included in this study sample.

Group 7

The US Rehabilitation programme is outcome based and designed so that each phase builds on previous phases. Group 7 which includes all US MBChB students who have experienced all rehabilitation training opportunities, should be able to provide a cross sectional opinion on the collective outcome of the programme. Half of this group participate in the final rehabilitation exposure, an OSCE, in April and the other half in November of the final (sixth) year of study. As the data collection for this study was performed in March to September 2011, the 84 students that participated in the OSCE in April 2011 comprised this population.

This population group is divided into six groups each completing their combined five-week Rehabilitation, Family Medicine and Community Health clinical rotation at different dates prior to the OSCE. Within these groups they are divided further according to the sites that they attend (II Military, Kraaifontein, Stellenbosch, Macassar, Elsies River, Robertson, Worcester, Helderberg, Khayelitsha, Wellington, Paarl, Swellendam, and Madwaleni) with approximately four students per group.

4.3.5.2 Study sample group

Group 1

A purposeful sample was obtained by approaching the 37 students that started their early phase rotation on 5 April 2011. This was the first third year group to participate in the early phase rotation after the questionnaires were developed. Students that were repeating the third year were excluded from this sample. There were no such students identified on the class list. Self-administered questionnaires were handed personally to the 37 students in this group. No student refused to participate. One student had a health condition as detailed in appendix 16e.

The purpose of including this sample was to gain pre-exposure opinions to validate the indicators. This sample did generate new themes against the eight open ended categorical questions but these were repeated within the sample and were consistent with other sample groups. It was thus considered not necessary to approach a second group of third year students as it was not anticipated that additional information would be gained.

Group 7

Ideally a random sample of 70 students would have comprised this sample (Research Advisors website accessed 18/10/2010; Universal Accreditation board website accessed 18/10/2010) providing a 95% confidence level and 5% margin of error. The researcher considered the best way to make contact with 70 students would be to make direct contact at a whole class lecture, but as the whole of the sixth year is dedicated to clinical rotations, no such opportunity existed. An occasion where large groups (approximately 20) of students are gathered was immediately after the OSCE. As this would be the last exam in a week of daily exams this was considered inappropriate. It was deemed unfair for the students to complete a questionnaire just after they had completed a two hour OSCE, when they would be focussed on post exam freedom. It was presumed that information gained in this setting would be of doubtful quality with possible resentment of the researcher. Discussion with the combined Module Chair concluded that it would not be possible to call a meeting of the sixth year student population identified. If an arrangement was made to meet directly with the small groups, 18 such contacts would have to be organised to reach 70 students. This was considered to be impractical, financially and time-wise not viable.

Discussion with the sixth year class representative led to the option of e-mailing all students in the population. Such methodology could be expected to have poor response rates (Baruch & Holtum, 2008) so the researcher considered contacting the students telephonically before sending out the questionnaires to improve response rates (Fincham, 2008). After attempting this method with the first seven students on the list, the telephone numbers proved not reliable and it was considered not to be financially or time-wise possible to contact the whole population of students. A questionnaire was thus e-mailed to all students in this population. An 83% response rate would provide a sample of 70.

Poorer than anticipated, only three of the 84 students responded. Finally a purposeful sample was selected. From the lists of the six groups of students one student from each group, each from a different site was contacted as available according to the phone numbers on the list. From the researcher's experience students belonging to the same group may share opinions and in this way bias from just involving one or two groups or one or two sites was reduced. The researcher co-incidentally had contact with one further student and thus seven were directly invited to participate. Of these seven, four responded. The seven students contacted were also requested to ask fellow students who

had completed the OSCE to complete the questionnaire, gaining an additional four respondents.

This sample of 11 was not acceptable but could not be improved upon within this study. Five of the six student groups were represented. Seven of the 13 possible sites were represented with II Military being represented thrice, Kraaifontein and Stellenbosch being represented twice each. Groups from Macassar, Elsies River, Robertson and Worcester were represented once each.

4.3.6 General practitioners (of the Western Cape, SA)

4.3.6.1 Study population

Although a US graduate may practice anywhere in SA the immediate training environment is that of the WC. All primary health care doctors at all public and private community facilities in the WC who manage persons with disabilities could constitute this study population. However the role of this population in this study was to review the suitability of the clinical related indicators. In order to make contributions relevant to a rehabilitation training programme, participants needed to be familiar with the context of disability and rehabilitation. In the WC both US and UCT Divisions of Family Medicine have adopted rehabilitation concepts according to the researcher's knowledge from involvement in their post graduate programmes. It was thus decided to narrow the population to Family Physicians in the WC. There were 48 Family Physicians (and 9503 GPs) registered in the WC with the HPCSA on 18/10/2010.

4.3.6.2 Study sample group

The names and contact details of 26 Family Physicians associated with UCT and US Divisions of Family Medicine were obtained. Six Family Physicians associated with US that had already been included in the population of site co-ordinators were excluded from this list leaving a sample of 20. 17 of these practitioners were contacted as telephonically available to participate in this research. The remaining three were excluded as they were unavailable at the time of conducting this study.

It was required that this sample should include:

- Public and private practitioners

- Practitioners that have practiced in a primary health care facility for more than six months in order for them to potentially have had adequate exposure to persons with disabilities and their needs.

Ten GPs responded (response rate 59%) of which two were working in the private sector and the remaining eight in the public sector. Their primary health care experience ranged between 15 and 22 years. One had been involved as an external examiner in the US MBChB OSCE and another in assessing the rehabilitation component of the mid phase rotation. Both had been involved in these roles for three years each.

4.3.7 Rehabilitation doctors (working in the field of rehabilitation in SA)

4.3.7.1 Study population

The US programme was developed by a multidisciplinary team with the input of a single doctor, the researcher. This study thus intended to gain the wider input of doctors who are passionate about the field of rehabilitation. Although the purpose of the training programme is not to specifically generate doctors who will one day work in rehabilitation, rehabilitation doctors interact daily with doctors who manage persons with disability at primary health care level. They could not evaluate the US, MBChB rehabilitation programme but were included to contribute to the suitability of the clinical related indicators for a rehabilitation programme for medical students in SA.

In 2007 at the joint SASCA and SANRA congress doctors working in rehabilitation in SA met. From the list of attendees, two public (WCRC, Tshwane Rehabilitation Centre in Gauteng) and three private facilities (Life Health Care, UCT Private, Mouldmed) were represented. At the time of identifying populations and samples for this study, these five facilities were contacted for a list of their current doctors. A list of 14 doctors was obtained excluding the researcher. An additional colleague who had recently resigned from the WCRC was included in this population of 15 rehabilitation doctors. Although there were other rehabilitation interest groups in SA, these attract therapists rather than doctors so were not considered to inform this population.

4.3.7.2 Study sample group

12 rehabilitation doctors were purposefully selected as they were telephonically available to complete questionnaires for the purpose of this study. The three remaining of this

population group were excluded as they were not available at the time of population sampling.

It was required that this sample should include:

- only doctors with more than six months experience in a rehabilitation setting
- representation from the public and private sector

On contacting the sample participants they were asked if they knew of any other doctors working in rehabilitation in SA. No further names were added. Ten of the 12 invited doctors responded (83% response rate) without any further prompting. They had a mean of nine years working in rehabilitation (range 1-21 years). One had post graduate training in Rehabilitation (MSc (Rehab) US) and one had completed an MPhil (Exercise Science), US. Three were working in the state sector in specialised rehabilitation facilities and the remaining seven in private specialised rehabilitation services. One doctor also serviced private rehabilitation patients in the community.

One rehabilitation doctor had been a lecturer in the theory block of the US MBChB programme for the past three years. Another had an impairment as detailed in appendix 16d.

4.3.8 Members of the interdisciplinary team (Physio, occupational and speech therapists, social workers, clinical psychologists, rehabilitation nurses and dieticians in the WC, SA)

4.3.8.1 Study population

A professional who may be a member of an inter or multidisciplinary team and who has worked in any community setting (public or private) needs to be able to attend to the rehabilitation needs of persons with disabilities. These professionals interact with doctors working in the community in a multidisciplinary fashion. As the aim of the programme is to equip doctors to be able to attend to the rehabilitation needs of patients in primary health care settings, the opinions of professionals in these settings needed to be obtained. Professionals at primary health care facilities would be aware of the knowledge, skills and attitudes required of future doctors in order for them to be able to manage persons with disabilities within or independent of a multidisciplinary team.

Professionals working in specialised rehabilitation facilities function in interdisciplinary teams with doctors proficient in rehabilitation. They were thus not included in this population as their perspective would be from a specialised rather than a generalised multidisciplinary clinical rehabilitation environment.

The population of professionals was thus all physio, occupational and speech therapists, social workers, clinical psychologists, rehabilitation nurses and dieticians involved in primary health care (CHCs, district hospitals, Non-Governmental Organisations (NGOs), private community based practice, schools for children with disabilities) in the WC. The list of professionals was established from the literature and was further explored in this study.

This population was difficult to define as no data base listing the above public and private community rehabilitation team members could be found. The HPCSA, SA Nursing Council (SANC) and SA Council for Social Service Professions (SACSSP) lists were comprehensive for all public and private practitioners as registration is compulsory to practice in SA. These lists however did not discern the level or speciality (rehabilitation) of care these professionals work at. The HPCSA website (accessed 18/10/2010) provided the total number of registered physio, occupational and speech therapists, clinical psychologists and dieticians per region. Nurses are registered with the SANC (website accessed 18/10/2010) and social workers with the SACSSP. The SACSSP website was not accessible at the time of planning populations and samples for this study. MEDPages (webpage accessed 18/10/2010) registers practitioners for advertorial reasons and was considered to be a reflection of privately or independently practicing disciplines who choose to register with them. The number of Social workers registered with them in the WC as well as other disciplines is noted in the table below to provide a perspective of numbers.

Table 4.3: Number of non-MBChB qualified rehabilitation professionals registered in the WC with HPCSA, SANC and MEDPages (websites accessed 18/10/2010)

Discipline	**HPCSA/SANC**	**MEDPages**
Physiotherapist	1865	849
Occupational Therapist	1307	511
Speech Therapist	546	191
Social Worker		352
Clinical Psychologist	1728	566
Registered nurses	14800	
Dietician	623	301

The numbers given per province on these lists may not have been accurate as a person may practice in a province other than that they are registered in. Professional society listings were also considered but registration with these is voluntary and did not specify community rehabilitation practitioners. DoH lists of physio and occupational therapists practicing in the Metropole were also not relevant as they did not refer to the whole geographical area of the WC or include private community practitioners.

As the nursing and social work populations were poorly described, the researcher considered the organisations that these disciplines deal with on discharging persons with disabilities from the WCRC to the community of the whole WC. From a nursing perspective, the orthopaedic aftercare sisters were considered to be the community rehabilitation nursing experts. The DoH data base listed 14 such nurses. From the social work side, the Association for the Physically Disabled (APD) was identified as a well distributed NGO. Of their 26 WC branches listed in January 2011 only 12 had social workers. Other data bases were searched but each had their own shortcomings. For example, the Mental Health Resource Directory (2004) covers psychiatric rehabilitation nursing but also substance abuse, marital issues and personal violence and was thus not appropriate.

4.3.8.2 Study sample group

As no definite population could be defined and considering the reason for including these indirect sample participants to pass opinion on the suitability of the clinical related indicators, rather than evaluating the programme per se, the researcher used a sample of

convenience. At the time of conducting this study, the researcher was involved in organising an ethics workshop at the WCRC. The workshop was advertised using the communication trees of the rehabilitation professionals of the WCRC. These trees include public and private, community and hospital based clinicians, but are not necessarily comprehensive. In responding to the advert, professionals had to include a contact telephone number and their place of work. 25 community based clinicians from the public and private sector were thus conveniently selected.

Social workers and rehabilitation nurses were not represented in this sample. The researcher was able to make contact with three nurses from the list of orthopaedic sisters and two social workers from APD. This brought the sample to 30.

As mentioned in the introduction to the populations and samples, there may be team members who were included in other sample groups (CRS managers and lecturers). Representation of the team members was considered within this sample but representation was considered acceptable as long as the team members were represented in the study as a whole. This was allowed as the indicators covered in the questionnaires for the team members were also covered in the questionnaires of the CRS managers and lecturers.

The criteria applicable to this sample were:

- All participants had to be working or have had more than six months experience working in a community setting at the time of data collection.
- The sample had to include representation from the public and private sector.

Of the 21 respondents (response rate 70%) six were working in a private community setting and ten in public and three had prior experience in primary health care. The remaining two had been working in the insurance industry for eight and five years respectively. This was accepted as primary health care practitioners are involved with application for disability benefits (Carey & Hadler 1986; Edlund & Dahlgren, 2002; O'Fallon & Hillson, 2005). The sample had a mean of 18 years (range 1-38) experience.

In this sample there was representation of all the disciplines except social workers as follows: four physiotherapists, 11 occupational therapists, one speech therapist, one clinical psychologist, two rehabilitation nurses and one dietician. There was however one

social worker included in sample four as a facilitator who had more than six months community experience. One therapist had been involved as a facilitator in the mid phase rotation of the MBChB rehabilitation programme for the past five years. One therapist had an impairment as detailed in appendix 16d.

4.3.9 Persons with disabilities (in the WC, SA)

4.3.9.1 Study population

Persons with disabilities were included in this study to establish the suitability of the indicators especially as it was noted that patient and doctors expectations of the doctor's role in rehabilitation may differ. The outcome of the MBChB rehabilitation training programme is to equip graduates with the knowledge, skills and attitudes to manage persons with disabilities in the primary health care context of SA. As the MBChB programme is delivered primarily in the WC the relevant population for this study was thus persons with disabilities who have been managed by the primary health care system of the WC.

The 2001 population census defined disability as a lack of "*full participation in life activities*" which is in line with the ICF, and reported a prevalence of 4,1% (186 850 disabled persons) in the WC with a national prevalence of 5%. All of these individuals could have been managed by the public and/or private health sector and were considered members of this population. No recent statistics could be sourced and the results of the 2011 census results will only be published in 2013 (StatsSA website accessed 28/01/2012).

4.3.9.2 Study sample group

The inclusion criteria for this sample was that participants must

- have lived with their disability for more than a year
- have received medical treatment at a primary health care facility (public or private) in the WC following their disabling event.

As the definition of disability is complex, patients with health conditions or impairments commonly associated with disabilities as described in the literature such as such as stroke, head injury, amputation, spinal cord affliction, cerebral palsy, psychiatric, intellectual or visual impairment were included in this sample. Participants included adults and children of any age. As these participants had to complete a researcher administrated questionnaire,

the patients were required to speak English or Afrikaans. Xhosa speaking participants would be accommodated as the researcher had access to an interpreter, however other languages of SA were excluded. Illiterate or patients with communication or cognitive problems, or children too young to communicate meaningfully with the researcher were also not excluded, although in this case the carer was interviewed and would reflect the opinions of the patient from the carer's perspective.

The purpose of including this sample was not to evaluate the programme but to review the suitability of the indicators. As this was an initial exploratory process, considering the paucity of the literature, two facilities that would provide the relevant sample participants were considered. The first was CSI, which is a protected workshop in the WC for persons with any disability. At the time of identifying a sample they had 156 such persons in their employ. The manager of the facility was contacted telephonically and confirmed by e-mail, for permission to involve the CSI workers in this study and for CSI to identify a range of health conditions according to the inclusion criteria. The names of ten patients were provided. Although this list included additional health conditions, the original list was not fully covered.

The second facility considered was the WCRC which holds out patient clinics, each day being for different groups of health conditions or problems (general neurology, spinal cord afflictions, amputations, seating, DG assessment and a general clinic for persons with disabilities). Patients other than first time attendees would have been referred to community facilities after their initial visit or admission. The Head of the WCRC was contacted personally for permission and the researcher identified a further eight patients from the various outpatient clinics according to the inclusion criteria. To expand on these views four persons with disabilities involved in advocacy roles e.g. involved with QASA and the WCRC Facility Board were further selected. This sample of convenience thus included 22 sample participants.

All the required health conditions and impairments were covered in this sample as detailed in appendix 16d. An additional three health conditions or impairments were offered (hearing impairment, musculoskeletal conditions and epilepsy) by participants. All participants had been managed at a public or private community facility. The mean age of the participants was 36 (range 13-57) years and the mean number of years living with a

disability 19 (range 1-55) years. The interpreter's service was not used. One child was included and the carer provided the information required.

Five patients did not consider themselves to be disabled for the following reasons: one considered disability to be of a physical nature, another considered acquired impairments to be a disability. Three coped well with their situation so did not feel disabled and one was hoping to recover so would prefer not be classified disabled at this point in time. Two patients had previously been involved with the US MBChB programme as case subjects, but did not consider themselves to be disability experts. Nine other participants in this sample considered themselves as experts in disability and rehabilitation.

4.4 Research methods and instruments

The WFME global standards for basic medical education were used as a framework for this study. Of the many articles describing the process to develop the standards, no reference was made to pre-existing tools. In studies using the standards to evaluate their curricula, no tools were included (Khattab, Badrawi, Sheba, et al, 2004). Interviews and questionnaires were used to obtain quantitative and qualitative data from sample participants using a mixed research method. A sequential exploratory strategy was used in the initial stages of the study to develop the indicators and questionnaires. A sequential explanatory strategy was used to clarify certain indicators after the analysis of the data from the questionnaires (Kroll, Neri & Miller, 2005).

Four questionnaires were designed to obtain quantitative data from direct stakeholder groups to provide a measure of compliance of the programme as well as recommendations for improvement to the programme. Five questionnaires were also designed to obtain quantitative data from indirect stakeholder groups to verify the indicators developed for this study. The instruments also contained questions to explore associated questions raised in the literature review. Quantitative and qualitative data obtained from the questionnaires was collected and analysed simultaneously in a concurrent design. This mixed method of research, as described by Kroll, Neri and Miller (2005) is well suited for evaluation studies where the qualitative component may provide answers to "*why things work or not*" and the quantitative component may measure to "*what extent the programme is successful*". The author's further comment that this mixed method encourages active consumer participation which is encouraged by the WFME standards.

Although the methods and instruments chosen were convenient in terms of cost and time, the disadvantages were considered during development and administration of the tools. This included possible poor response rates, poor quality of information gained against closed questions, the respondents' incentive to participate, honesty and recall the respondents' interpretation of the question and the researcher's interpretation of the response.

4.4.1 Development of research methods and instruments

The application of these two methods to the nine population samples (with two student sample groups) resulted in the development of two interview schedules and nine questionnaires as tabled below.

Table 4.4: Summary of the methods to be applied to the various study samples and instruments to be used

	Study samples	Methods	Instrument: see Appendix no:
1	Management of US, FHS	In depth interview with Head CCE	7a
2	Chairpersons of clinical modules	Questionnaire	8
3	CRS management	Questionnaire Interview with Head CRS	9 7b
4	Rehabilitation programme lecturers, site co-ordinators, facilitators and assessors	Questionnaire	10
5a	Student sample group 1 (Third year students)	Questionnaire	11a
5b	Student sample group 7 (Sixth year students)	Questionnaire	11b
6	General practitioners	Questionnaire	12
7	Rehabilitation doctors	Questionnaire	13
8	Inter or multidisciplinary team members working with persons with disabilities in the community	Questionnaire	14
9	Persons with disabilities	Questionnaire	15

The indicators were applicable to any rehabilitation programme and so worded. The instruments, however, although based on the indicators, were worded specifically for this study to evaluate the Rehabilitation programme of the MBChB curriculum of the US.

4.4.1.1 Interviews

From the outset an in depth, one-on-one interview was planned with the Head of the CCE. An interviewing schedule was prepared for the meeting (Appendix 7a). The interview provided information which assisted in the development of the questionnaires as well as data against selected indicators where the information was not otherwise available.

An in-depth one-on-one interview was conducted with the head of the CRS according to the interviewing schedule in appendix 7b. The focus was on aspects over which she has sole control in the light of the quantitative results obtained from the questionnaires. Although time consuming, these interviews were essential where data could not be obtained form other sample groups.

In addition participants completing questionnaires were requested to volunteer contact details should the researcher identify the need to clarify answers or selectively conduct interviews with them. At the time of data analysis the module chairs and two members of sample 4 were further contacted to clarify their roles as lecturers, site-coordinators, facilitators and assessors. No interviews were required.

For completeness sake it must be mentioned that the researcher has had conversations with various people in order to formulate a framework for this study as referred to in this narrative. Of particular note was a more formal interview with Professor P Van Niekerk who represented SA representative on the WFMEs team for development of the Global Standards for basic medical education, who gave guidance in using these standards in evaluating a programme rather than a curriculum for which the standards were intended. This interview was conducted during the literature review and he was not deemed a study participant.

4.4.1.2 Questionnaires

As this research intended to gain the input from a wide variety of populations and because there were a large number of indicators, questionnaires were primarily used. This methodology was considered appropriate for this study as the problem as discussed in Chapter 1 had already been identified and where the indicators and methods needed to be verified. Methods such as focus group discussions or a larger number of in-depth interviews were considered inappropriate as the problems had already been largely identified These qualitative methods would be suitable in the future for further exploration

of specific problem areas identified (Social Research Methods website accessed 18/04/2011).

The questionnaires were divided into two parts. Part A established the pre-existing knowledge of and involvement of the respondent with the US MBChB Rehabilitation programme, knowledge of undergraduate MBChB rehabilitation training at other universities in SA, educational back ground, clinical and rehabilitation experience, and personal experience of disability to establish credibility and representivity of the sample as well as to confirm that respondents fell within the inclusion criteria for each sample.

Each question in Section B of the questionnaire was developed for each sample group in line with the indicators. Not all indicators were relevant to all stakeholders but each indicator was evaluated by obtaining information from as many sources as possible in order to reduce bias. The numbering of the indicators was used as cross reference in each of the questionnaires. In this way all information pertaining to a particular indicator as gained from various sources could be collectively analysed. These questionnaires are contained in appendices 8-15 as listed in table 4.4 above. The samples invited to respond to each indicator are also tabled in appendix 6b.

Questions against a particular indicator were worded differently for direct and indirect samples so as to establish compliance with the indicator or validate the indicator. For example lists of educational methods, health conditions, bio psychosocial problems, assessment methods, etc as established from the literature and the researcher's experience were used in the indicators for this study. Table 4.5 below shows how questions were individually worded and numbered a, b, c, d, etc to extract different information from different samples to provide information against a single indicator.

Table 4.5: Example of relationship of indicators to questions posed for different samples

Number of indicator	Indicator	Number of question	Question	Sample	Comment
2.22	Students are made aware with the health conditions frequently causing disability in their local health context	2.22a	Medical students are made aware of the following health conditions which cause disability in SA during the MBChB rehabilitation programme.	Module Chairs CRS management, Lecturers, facilitators, site co-ordinators and assessors Student group 7	A list of conditions is provided and respondents should mark all relevant option. An "other" category is also provided
		2.22b	Are there any additional health conditions that should be covered by the rehabilitation programme	Module Chairs CRS management, Lecturers, facilitators, site co-ordinators and assessors Student group 7	Open question in addition to the listed options
		2.22c	List the heath conditions which you consider to cause disability in SA and which should be taught in a disability and rehabilitation programme	Student group 1	Open question only
		2.22d	Which of the listed heath conditions that cause disability have you dealt with in the last six months in your practice	GPs	A list of conditions is provided and respondents should mark all relevant options. Closed question
			Which of the listed heath conditions that cause disability have you seen in your community	Persons with disabilities	A list of conditions is provided and respondents should mark all relevant options. Closed question

		2.22e	What other health conditions that cause disability have you dealt with in your practice in the last six months	GPs	Open question in addition to the listed options
			Are there any additional heath conditions that you have seen	Persons with disabilities	Open question in addition to the listed options
		2.22f	Which of the listed heath conditions should be taught to medical students in a disability and rehabilitation programme	Rehabilitation doctors Interdisciplinary team members	A list of conditions is provided and respondents should mark all relevant options. Closed question
		2.22g	What other health conditions should be taught to medical students in a disability and rehabilitation training programme	Rehabilitation Doctors Interdisciplinary team members	Open question in addition to the listed options

The direct samples informed the study of what the students have received as well as other conditions they feel the students should be exposed to. The third year students from the perspective of not having had any rehabilitation training had free range to initiate a list of conditions. 2.22d and 2.22e had two differently worded questions for GPs and persons with disabilities respectively but were both establishing the health conditions present in the community and were thus grouped together. The rehabilitation doctors and professional team members provided opinion from a specialist point of view what students should be taught rather than enquiring as to what heath conditions they have seen as they form a specialised referral base (Friedlingsdorf & Dunn, 2007).

Closed (ordinal and categorical type responses) and open ended questions were used in both sections A and B. For questions requiring ordinal responses, a four point Likert scale as suggested by the statistician forced respondents to commit to either an ‘agree’ or ‘not agree’ response rather than marking a ‘neither agree or disagree’ option as offered in a three, five or seven, etc Likert scale. It was noted that this principle was never raised or exercised by other researchers in the literature reviewed for this study. The option of ‘not applicable’ should the respondent not have enough information to answer the question

was provided for these questions having ordinal responses. It was expected and confirmed that this was required for the theory block lecturers or theory module chair who may not have had sufficient knowledge to answer questions relating to the clinical modules.

For questions requiring categorical responses the questions clearly indicated if only one or more than one response was allowed. These types of questions were followed by an open question allowing the respondent to suggest additional options as in table 4.5 above. In this way the appropriateness and comprehensiveness of the indicators was established.

Sample 5 (group 1) was the only sample not to be provided with lists and were required to generate their own lists for health conditions and bio psychosocial problems and to initiate a list of the most and least useful educational, assessment methods and resources. Sample 5 (group 7) was asked, in additional to the established lists to add suggestions to expand the lists, and to initiate which educational methods and resources they found the most and least useful.

Samples 6, 7 and 8 asked respondents what undergraduate medical students need to learn about the medical management of persons with disabilities, what they need to learn from other disciplines and what they need to learn about community resources. Lists were not requested and space was provided for open narrative.

To complement this data three open ended questions were asked. The first was to provide any further personal information at the end of section A, should the respondent feel this was relevant. Section B asked directly involved participants for any further comment on the delivery of the programme under review and a further question for direct and indirect participants on any further comment on the administrative aspects of a rehabilitation programme. The former was intended to gain criticism of the programme or for suggestions for improvement to the programme. The latter was to expand on the indicators.

In order to avoid ambiguity, questions were predominantly worded positively and contained only one concept. This also made analysis of data straightforward. Questions were however specifically posed at intervals to avoid response set (Social Research Methods website accessed 18/04/2011). Another method used was to include two similar questions posed from apposing viewpoints but not necessarily mutually exclusive to increase

reliability of answers. Following the advice from this author, questions were not personal, the literacy level, especially when it comes to medical and educational terminology, was taken into account, and that the ordering of questions was considered.

4.4.2 Peer review of research methods and instruments

The interviewing schedules and sets of questionnaires were reviewed by selected individuals as listed in the table below. Contamination was avoided by involving persons who were not included in the study samples.

Table 4.6: Table of individuals who reviewed the questionnaires

Tool	Selected individual
Interview schedule for Head CCE	Head CRS
Interview schedule for Head CRS	Current Rehabilitation Programme Co-ordinator
Questionnaires for Module Chairpersons, CRS Managers, CRS lecturers and facilitators	Previous Rehabilitation Programme Co-ordinator
Questionnaires for Third year students	Second year SU student
Questionnaires for Sixth year students	Students having completed the sixth year in the year preceding the study
Questionnaires for Primary Health care practitioners,	Head of Family Medicine, SU
Questionnaires for Rehabilitation Doctors	Medical officer with one year's experience working at the WCRC
Questionnaires for Team members	Clinicians working at WCRC
Questionnaires for Persons with disabilities	Person with disability working at WCRC

These individuals were asked to comment on the content and relevance to the evaluation of a rehabilitation programme, on aspects effecting reliability such as layout and language use, as well as feasibility including the length of the instrument, time taken to complete it and practical application as suggested by Malterud (1995) and Kroll, Neri and Miller (2005). During this process the practicalities of administrating the questionnaires via e-mail was also tested.

As the Head of the CRS referred the researcher to interview the Head CCE, she was able to comment on the appropriateness of the proposed questions. The RPC was aware of the

critical interview questions which were beyond her mandate and thus needed to be posed to the Head CRS.

The idea of evaluating the US MBChB Rehabilitation programme was discussed with the previous rehabilitation co-ordinator when in office. This person was familiar with the university structures and the components of the programme and was thus appropriate to pass opinion on the first three questionnaires.

A second year US student was at the same level of rehabilitation exposure as the third year sample identified and could review the third year questionnaire. The timing of the study allowed the researcher to ask the outgoing sixth year students of 2010 to review the sixth year questionnaire, with the research sample being the 2011 sixth year group.

The Head of Family Medicine at US is an expert in research with vast experience in clinical practice, is aware of the MBChB Rehabilitation programme, and was not included in any of the sample groups. He provided invaluable input into the readability of the questionnaires for the GPs. A medical officer working at WCRC was familiar with rehabilitation concepts but was not considered an expert or passionate about rehabilitation. This person evaluated the rehabilitation doctor's questionnaire. Although team members working at WCRC were excluded from the study sample, two were selected from WCRC for their knowledge of the programme and of community practice to review the instrument for team members.

The WCRC employs persons with various disabilities (e.g. SCI, head injury) who are also patients in the health system. The person selected to review the patient's questionnaire was not included in the patient study sample.

The tools developed for this study were thus peer reviewed rather than piloted. This route was chosen as the tools could not be piloted and used in the study due to the small size of the direct populations and the uniqueness of the programme.

4.4.3 Administration of the instruments

4.4.3.1 Interviews

The Head of the CCE was contacted for an interview which was conducted on 23/02/2010 according to the schedule in appendix 7a. The interview was recorded with the

interviewee's permission and the contents were transcribed into a Microsoft© Word document.

An interview with the Head of the CRS was conducted on the 06/12/2011 according to the schedule in appendix 7b. This interview was also recorded with the interviewee's permission and the contents transcribed into a Microsoft© Word document.

Where information had to be obtained or clarified, the module chairs and members of sample 4 were directly contacted in person or by telephone.

4.4.3.2 Questionnaires

4.4.3.2.1 Module Chairs, CRS managers, lecturers, site co-ordinators, facilitators and assessors, GPs, rehabilitation doctors, members of the interdisciplinary team, persons with disabilities involved in advocacy roles

Telephonic contact was initially made with 102 sample participants in order to explain the purpose of the study, gain verbal consent and a reliable e-mail address as suggested by Fincham (2008). This explanation followed the format of the written request which was then mailed electronically if the individual agreed to receive this. No persons contacted telephonically refused participation.

When contacting potential participants, many voiced concerns, support or suggestions for the programme. They were requested to include these comments when returning their questionnaires. The telephonic discussion answered any immediate queries regarding the study, and that the questionnaire may be completed in English or Afrikaans. The Theory Module Chair and lecturers were unsure as to the contribution that could be made due to poor understanding of the whole Rehabilitation programme. They were assured that 'not applicable' options were available in the questionnaire as this situation had been anticipated. The e-mailed request was personalised for each sample and is provided in appendices 8-15 along with the questionnaire used for each sample group. The mail further included information as required by selected samples to complete the questionnaire (e.g. Profile of the Stellenbosch Doctor, extracts from the study guides (as contained in appendices 1-5) and examples of test and exam questions, not included in the appendices to avoid student access to them). The covering letter and questionnaire included instructions as to how to complete the self-administered questionnaire as well as saving the completed document and how to return it.

Although mail surveys are convenient and cheap, the response rates can be as low as 52.7% (Baruch & Holtum's, 2008). However a multimodal approach, e.g. contacting prospective participants before e-mailing them, was reported to achieve rates of 70% (Fincham, 2008). Critical respondents who did not respond in the requested two weeks were followed up telephonically to enquire if they had received the original mail, if they had completed and returned the questionnaire and if not, to consider doing so at their earliest convenience. An additional 82 telephone calls were made for this purpose.

E-mail is also not infallible as mail addresses could be incorrect and spam filters could obstruct the delivery between the respondent and researcher. E-mail is however an accepted communication medium in professional circles and enabled the researcher to obtain a wide range of sampling from clinicians in the rural areas of the Metropole and from rehabilitation doctors across SA. An advantage of this method of administration was realised during data capturing when narrative responses were copied and pasted from electronically completed and returned questionnaires into the data base saving time and facilitating accurate capturing of responses.

It was acknowledged that completing questionnaires could be time consuming and the enthusiasm for doing so could be dependent on the interest in the study. The time that it took to complete the questionnaire was established during peer review of the questionnaires and was communicated telephonically and on the covering letter to potential participants. This was 30-45 minutes for directly involved samples and 10-20 minutes for those indirectly involved with the programme.

4.4.3.2.2 Student sample group 7

All of the 84 sixth year medical students were initially e-mailed after which 81 were mailed a further four times. Only three students responded so seven were contacted telephonically after which questionnaires were mailed to them. These seven were asked to request their colleagues to also complete questionnaires. These were considered to be indirectly invited to participate.

4.4.3.2.3 Student sample group 1

Questionnaires were personally delivered to a group of 37 third year students starting their third year rehabilitation exposure. These questionnaires were self administered. Accessing

this sample as a group was opportune as at this stage of the curriculum, students receive much of their training in larger groups compared to more individual smaller group exposures in their final year. Contacting students personally compared to e-mail contact was expected to yield higher response rates and was considered ethically more acceptable. Firstly the questionnaires could be completed anonymously and students could be personally reassured that participation in the study would in no way influence their rehabilitation marks.

4.4.3.2.4 Persons with disabilities other than those in advocacy roles

The questionnaires for 18 persons with disabilities were researcher administered. The researcher read the covering letter and the instructions to the patient or carer. If they verbally consented to participate, the researcher continued to proceed with asking the questions as stated in the questionnaire. As it was anticipated that some health conditions would make writing responses impossible or time consuming, the researcher marked off the respondents' selected options and wrote verbatim answers on the questionnaire. Although this may have introduced bias, the researcher was confident of her insight into this potential problem and knowledge and experience of objective and consistent assessment of students and patients. In line with clinical practice consent was verbally obtained as the information gained was not considered to be sensitive and there was no invasive intervention.

The researcher was familiar with volunteer administered questionnaires from clinical and administrative practice but had reservations regarding the cost effectiveness and time efficiency of obtaining and training a suitable volunteer. Researcher administered questionnaires also allowed for clarification of questions in a consistent manner. As this was a baseline evaluation and no articles could be found regarding patient input into programme development, the researcher also wanted to be directly involved with this aspect to gain insight for further development of the instruments.

4.4.4 Response rate and completeness of returned questionnaires

4.4.4.1 Response rate

The response rates were influenced by the nature of the sample, research methods used (Ranasinghe, Wickramasinghe, Wickramasinghe, et al, 2011) and the extent of follow up (Van Horn, Green & Martinussen, 2011) and was important when interpreting the data. It was also important in achieving objective 6 in this study for the purpose of designing

methods for ongoing monitoring of the programme. The response rate in each sample has been given and is summarised in table 4.7 below. Of note is the 83% response rate of the rehabilitation doctors who were interested in the future of rehabilitation as a speciality in SA. On overall response rate is not meaningful as a uniform sampling method was not used and as with student group 7 (not included in the table), three methods were used.

Table 4.7: Response rates of sample groups

Sample no	Sample	Number of persons invited to participate	Number of respondents, or sample size (n)	Response rate
2	Module chairpersons	5	5	100%
3	CRS Management	4	3	75%
4	Lecturers, facilitators, Site co-ordinators and assessors	30	19	63%
5	Group 1	37	37	100%
6	General Practitioners	17	10	59%
7	Rehabilitation doctors	12	10	83%
8	Interdisciplinary team members	30	21	70%
9	Patients	22	22	100%

A respondent who had not completed the questionnaire adequately was considered as good as a non-respondent. The consideration of adequate completion is discussed here with the evidence being placed in appendix 17 to avoid cluttering this chapter. This is of relevance for the review of the tools as per objective 6.

4.4.4.2 Completion of Section A

It was required that section A be complete to confirm the inclusion criteria had been adhered to, and to establish the representivity and credibility of the participants. All respondents completed this section completely.

4.4.4.3 Completion of Section B: Questions with an ordinal response

In section B it was expected that all of the questions using a Likert scale be answered. In 11 questionnaires between one and five such questions were left unanswered or not clearly answered as detailed in appendix 17a. This totalled 18 questions between them. These questionnaires were included in the analysis with the denominator for each question being adjusted accordingly. One of the lecturers failed to answer 24 questions and this questionnaire was excluded from the analysis.

4.4.4.4 Completion of Section B: Questions with a categorical response

For categorical questions where multiple options were given and the respondent could mark off more than one option, it was expected that at least one of the options should be marked as these options were based on the literature. Six respondents, all lecturers, failed to mark any of the options. Four indicated that they did not have enough information to answer the questions or that none of the options were relevant answers. This realised the shortcoming that a 'not applicable' option should have been offered in these questions.

4.4.4.5 Completion of Section B: Open ended categorical questions

All but two of the 49 respondents in samples 2, 3, 4 and 9 provided additional items to at least one of the lists in the questionnaire.

The 37 respondents in sample 5 (student group 1) were expected to complete eight open ended questions. Nine failed to complete one question each, one respondent failed to complete two questions and one failed to complete three questions. The last question in the questionnaire had the lowest response rate as can be seen in the table in appendix 17bi. This may have been as it was the last question and was related to administrative rather than clinical aspects of the programme.

The 11 respondents from sample 5 (student group 7) were expected to provide responses to four open ended questions. Two respondents failed to complete one question each, one failed to complete two questions and one failed to complete three questions.

All 10 of the GPs in sample 6 completed all of the three open ended questions. Of the 10 rehabilitation doctors in sample 7, two failed to reply to one question each. In sample 8, two team members failed to reply to one question each, with two further team members not responding to two questions each.

In summary, of the 138 questionnaires returned only one (L19) was excluded from analysis. The total sample size for the study excluding the interviews was thus 137. The completeness of all the other questionnaires and the overall response rate to individual questions was considered satisfactory for this study.

4.5 Further data sources

Apart from information gained from the above samples, some of the indicators referred to evaluation of the programme by reviewing data sources. Three data sources were identified which were tapped either directly or indirectly.

4.5.1 CRS and FHS documentation

Firstly the sample participants directly involved with the programme were asked to complete their questionnaires based on their subjective opinions but were also provided with the Profile of the Stellenbosch Doctor, study guides (as contained in the Appendix 2-5) and examination questions for reference in completing the questionnaires. The participants to whom these were provided should have been familiar with these documents in order to fulfil their roles as module chairs, CRS managers, lecturers, co-ordinators, site facilitators and assessors but the documents were provided for convenience should they have wished to refer to them. These data sources were thus not evaluated directly by the researcher to limit the introduction of bias, but rather indirectly through questionnaires completed by relevant sample participants.

The OSCE external examiner provides feedback to the overall chair of the combined programme after each bi-annual OSCE session. The respective module chair was requested to include this feedback when completing the questionnaire.

4.5.2 Existing student feedback forms

A second data source was the feedback forms that students provide at the end of each module. The mid and late phase feedback questionnaires, which were adapted from the generic FHS questionnaire, rate the value and workload of the module and allows free comment on strengths and weaknesses of the clinical sites, difficulties experienced and suggestions for improvement to the module. The mid phase feedback includes comment on the site tutor. Similar forms are used for the early and theory modules. The completed forms are passed onto the module chairs who summarise this data annually. They were asked to consider this feedback when completing their questionnaires. This indirect method was chosen when the module chairs had previously been approached for these reports they had voiced that there was infrequently anything specific regarding rehabilitation with overall good ratings. If anything specific had been raised it would have

been fed directly through to the RPC and some of these concerns had already been raised in the introduction.

The RPC receives written feedback from the early phase students which includes a Likert scale scoring of the quality and value of the rotation and notes as well as open comment specifically pertaining to the rehabilitation component of the module. This is also summarised by the RPC and this participant was requested to consider this feedback when completing their questionnaire. Again an indirect route was chosen for this data source as the RPC indicated that the feedback forms were not readily available, and only a few of the forms had provided narrative comment, again on which actions had already been taken or concerns have raised.

4.5.3 Student results

Lastly, as suggested by the IIME (website accessed 05/11/2009) results of student assessments could be used to evaluate medical school performance. Indicator 7.1 also called for student results to be monitored to evaluate the programme. Over one calendar year eight OSCE questions call for integration of all knowledge, skills and attitudes acquired during rehabilitation and other specialist rotations over the six year MBChB curriculum. Although the results of individual OSCE questions have varied according to the question itself and the competency of the students, a review of the overall performance of the students in the rehabilitation questions was considered as a method to evaluate the achievement of the outputs of the programme.

The results for the two rehabilitation questions for each of the two sessions for each of the OSCEs over the past two years were sought. Although during the exam, the marks for all the approximately 20 OSCE stations have been recorded separately for each student, once these marks were moderated, only the final combined mark for the OSCE was available in the university's data base. The results could thus not be used to evaluate the programme. During data analysis, the use of the OSCE results to measure the outputs of the programme was considered inappropriate for this study as comment was that students are being assessed on aspects that not all have uniformly been taught. Although aware of the poor validity of the rehabilitation OSCE question, changes had not been implemented yet at the time of data collection.

Longitudinal tracking of individual student's pre and post exposure attitudes and marks for assessments of sequential activities would have provided an indication of growth of an individual student across the programme (Sabharwal & Fiedler, 2003; McFadyen, Webster & Maclaren, 2006). This longitudinal data relates more to the outcomes of the programme which were not evaluated in this study. However in searching for student results for other purposes, the researcher noted that individual module results were recorded unreliably by the respective assessors and not specifically for rehabilitation by the module chairpersons or CRS. This short coming was addressed in the recommendations.

In this study student results were further considered to evaluate indicator 2.3 regarding sequencing of educational activities. As the mid phase exposure was delivered over 18 months spanning the 4th and the first part of the 5th years, when the theory block was delivered at the beginning of the 5th year approximately two thirds of the class would have already had the mid phase rotation (group 4) whereas the remaining third has not (group 5). As there is a considerable amount of overlap between these two exposures it is important to differentiate these two groups to investigate if this sequencing of activities impacts on their learning experience and outputs. The theory block test and exam results of students who had had both the theory and the mid phase exposure (group 5) were compared to the results of those who had only had the theory exposure (group 4). As the style of question for the test and the exam differ, both sets of results were analysed. Sets of results from student groups 4 and 5 writing the same test were analysed.

Although the researcher could trace the theory block test and exam results for the past five years, documentation to separate the students into groups 4 and 5 was only available for the (4th and 5th year) students who had completed their mid phase rotation in 2008. Those who completed their mid phase rotation in 2008 as fourth years would have then had both exposures when doing the theory block in 2009 i.e. group 5. The rest of the 2009 theory block results would belong to group 4 who still had to complete their mid phase rotation as fifth years in 2009 after the theory block. The fifth year students on the 2008 mid phase rotation list would have written their theory block in 2008 prior to doing the mid phase rotation. They would then have fallen into group 4 for the 2008 theory results. The remainder of the results on the 2008 list belonged to the students who had completed their mid phase rotation in the preceding fourth year in 2007 and would constitute group 5.

The process of determining the sub populations was experienced as complicated by the researcher so an attempt at further clarification is made below.

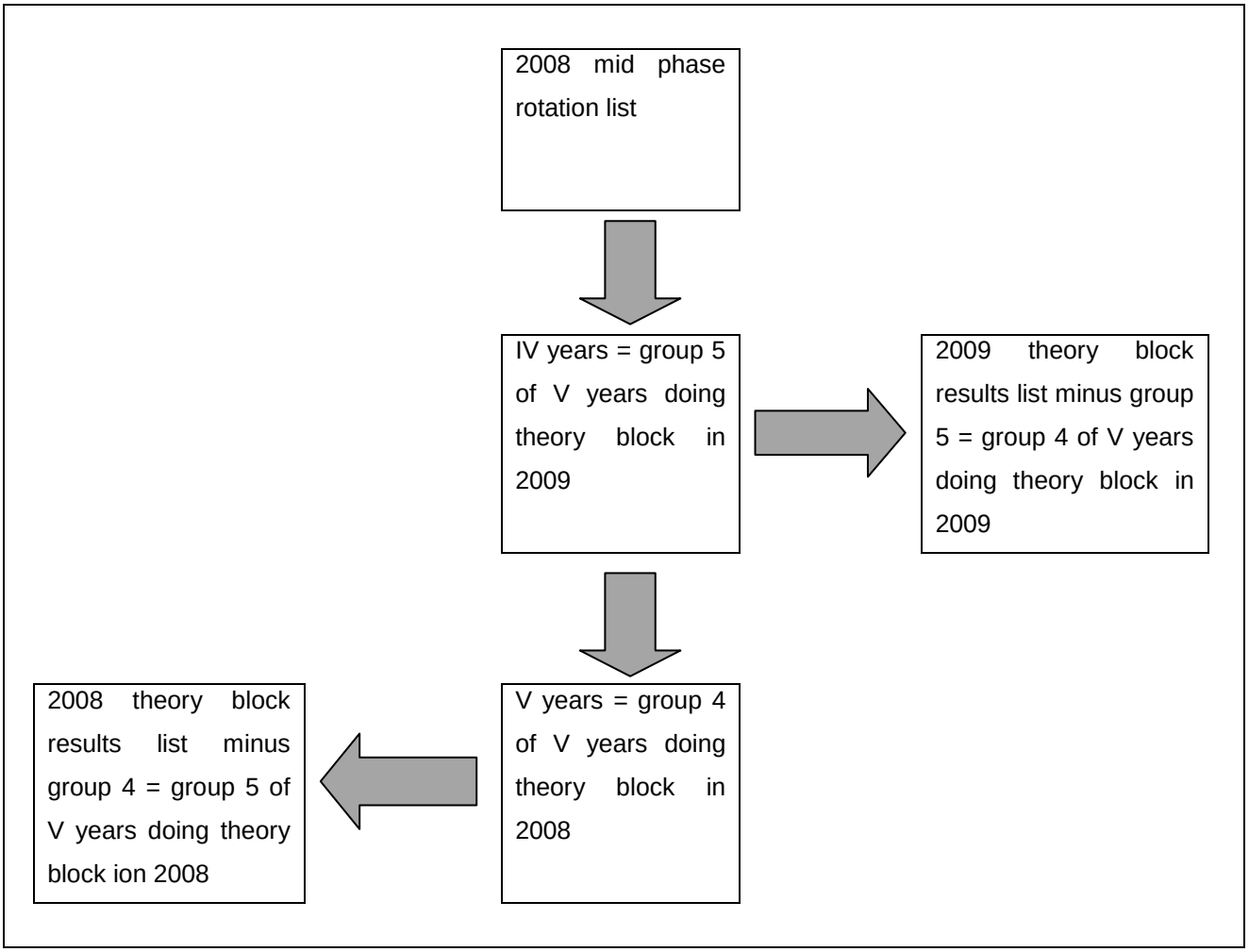


Figure 4.5: Process to determine study sample groups 4 and 5 in 2008 and 2009

The student results were analysed to ascertain if there was any significant difference between groups 4 and 5 who received their mid and theory exposures in opposite sequence. The analysis was repeated for both the test and exam results for both the 2008 and 2009 theory blocks.

During the course of this study, the theory block has been moved to the end of the fourth year. The same scenario occurs except that there are now fewer students in sample 4 and more in sample 5. The value of this analysis thus still applies.

4.6 Data analysis

4.6.1 Data capture

The two interviews were structured according to the indicators. The audio recording was transcribed into a Microsoft Word© document and checked against the researcher's interview notes. The qualitative data was copied from the electronically returned questionnaires and pasted into a Microsoft Excel ©workbook.

All quantitative data from the questionnaires was recorded collectively using Microsoft Excel ©. When the questionnaires were returned, the name of the respondent was marked on the document together with a code according to the sample group and the order in which it had been received within that group. This code was used when the data was entered into the Excel© spread sheets, the name of the respondent not being included. The code enabled the researcher to refer back to the original questionnaire when there were queries regarding the accuracy of the data capturing. Table 4.8 below lists the codes used in the spread sheets as these are referred to in the chapters presenting and discussing results.

Table 4.8: Codes used to represent sample respondents during the data capturing process

Sample no	Sample	Code
1	FHS Managers	FM1, FM2
2	Module Chairpersons	MC1, MC2, etc
3	CRS Management	CM1, CM2, etc
4	Lecturers, site co-ordinators, facilitators and assessors	L1, L2, etc
	Student sub population 1 (Third year students)	S3-1, S3-2, etc
5	Student sub population 7 (sixth year students)	S6-1, S6-2, etc
6	General practitioners	GP1, GP2, etc
7	Rehabilitation doctors	RD1, RD2, etc
8	Interdisciplinary team members	T1, T2, etc
9	Persons with disabilities	P1, P2, etc

Demographic information from section A of the questionnaires was recorded on a separate sheet for each sample and then collated onto a further sheet. The same was done for the data from section B with a separate sheet for each area of the indicators with area 2 being split onto two sheets due to the number of indicators. The quantitative data was recorded as continuous (age, years experience) ordinal (where strongly disagree and disagree=1 and strongly agree and agree=2) and nominal/categorical variables (where affirmative

response=Y and non response=N). No options for 'none' or 'not applicable' were offered. If there were no responses for the whole question, it was considered that the whole question was not answered.

The results of the students were entered into a separate book with separate sheets for the 2008 test, 2008 exam, 2009 test and 2009 exam results. On each of the sheets the results of the students belonging to group 4 and 5 were listed.

4.6.2 Analysis of qualitative data

The qualitative data obtained from the interviews and narrative from the questionnaires was analysed for themes. These themes were linked with the established indicators as there was no need to establish new ones. Some indicators contained categories, and the themes were linked with these with new categories being established as new ideas were identified. Any new ideas generated were considered and not only those suggested frequently.

In this way, the qualitative data added depth to certain indicators was interpreted with the results of the analysis of the quantitative data. This triangulation allowed for scrutiny of consistency (i.e. the quantitative and qualitative data supported each other), complementary data (the qualitative data added to the quantitative data) or contradictions (where the qualitative data did not support the quantitative data) (Kroll, Neri & Miller, 2005).

4.6.3 Analysis of quantitative data: questionnaires

For each of the indicators, the percentage agreement was established from the ordinal and categorical variables. Statistical analysis was conducted by the US Centre for Statistical Consultation, using STATISTICA 8, Statsoft Inc. (2008). This was first calculated for all samples who answered the same question (aggregate sample) together. A chi-squared test determined if there was any relationship between the responses and the individual sample groups to which the respondent belonged. If the p value was less than 0.05, indicating a relationship, the percentage agreement was then calculated per sample group. If there was no relationship, the percentage agreement calculated for the aggregate sample was used to determine compliance.

The significance of the agreement or disagreement with each statement was calculated where the null hypotheses stated that the percentage agreement was 50% (i.e. there was

neither agreement nor disagreement) and the alternative hypothesis was that agreement was more than 50% or disagreement was less than 50%. A p value of less than 0.05 would reject the null hypotheses indicating a significant result.

4.6.4 Analysis of quantitative data: Student results

The analysis of variance (ANOVA) was used to compare the means of the theory block results of student groups 4 and 5. This was performed for the test and exam results for years 2008 and 2009. A p value of less than 0.05 represented a significance difference between the means. A plot of raw residuals (where a residual is the difference between the result and the mean) showed if the results follow a normal curve. The Sahpiro-Wilk test showed if the residuals were normally distributed with a p value less than 0.05 representing a significantly not normal distribution. If the residuals were not normally distributed, the Mann-Whitney test was performed to determine if there was significant difference between the means of the results for groups 4 and 5.

4.7 Expert opinion

The results of the study were summarised and discussed with the RPC and an educational expert at the annual MBChB programme review meeting (11/11/2011) and with the early phase facilitators (25/11/2011). This allowed for further validation of the results. The opinions of these experts are contained in the discussion.

4.8 Ethical considerations

Firstly, approval was obtained from the Ethical Committee of the US (reference no: N07/05/129) prior to the commencement of this study.

During the process of data collection, FHS management was contacted and permission was obtained to involve staff and students directly involved with programme. In approaching the module chairpersons and CRS management permission was again obtained to involve the rehabilitation programme lecturers and facilitators. Permission to review documentation of the US, FHS was requested of the faculty management and module chairpersons. Clinicians indirectly involved with the programme were contacted as independent individuals. Permission from Heads of facilities (WCRC and CSI) was obtained in order to approach patients for their participation.

It was envisaged that samples 1-4 (FHS management, module chairpersons, CRS management, rehabilitation programme lecturers, site co-ordinators, facilitators and assessors) should not be in any way disadvantaged by participating in this study. On the contrary it was anticipated that they would embrace an opportunity to contribute to a process in which they were already involved. As these samples received and returned their questionnaires via e-mail, anonymity was not established.

Students however may have been concerned that the answers they give may have been a reflection of their rehabilitation knowledge. The group that was still to receive their rehabilitation training was thus approached in person and they were given written confirmation that participation in the study would in no way influence their rehabilitation marks. Completion of these questionnaires was completely anonymous. Participants were however requested to volunteer their contact details should they wish to contribute further to this research. Eight third year students did so.

Students from group 7 had already completed all rehabilitation exposures and their final marks have been submitted to the FHS. Participation in the study could not influence these marks. These students were thus contacted telephonically and questionnaire sent to them using their university e-mail address which was linked to their student number. These responses were thus not anonymous.

Although all samples (except student group 1) did not complete questionnaires anonymously, the information gained was dealt with confidentially. Although the name of the respondent was marked on the returned questionnaire, only the allocated code was entered into the Excel© spread sheets. When reviewing student results these were in data bases linked to the student's name and number. The names of the students were used to allocate students into groups 4 and 5. Once allocated the student names were removed and only the numerical data was analysed. Participants were informed that the results of the study would be made public and if they would like personal feedback on the results of the study this would be provided on completion of this research.

Participation in any of the study samples was entirely voluntary. On directly approaching the third year students and patients they were given the opportunity to either participate or not. Students who wished not to participate, returned a blank questionnaire or did not return any questionnaire. Verbal rather than written consent was obtained from patients

which was considered appropriate for the nature of the study, consistent with clinical practice and the same process was used in the evaluation of the DoH NCS.

From the researcher's experience in participating in e-mail conducted research, consent was considered to be given if the individual contacted completed the questionnaire. The covering letter in this study stated 'Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return…'. Apart from time and e-mail access, participants should not have incurred any expenses, neither were they paid for their participation.

4.9 Rigour of the study

4.9.1 Bias

The researcher's involvement in the design, development and delivery of the programme and concern for evolution of a programme of excellence resulted in the initiation of this research. However the researcher has been acutely aware that this personal interest in this study was a potential source of researcher bias in all aspects of the study, from the development of the indicators and tools, to the analysis of data, drawing of conclusions and making recommendations. The researcher thus obtained independent and external expert opinions in the development of the research methodology and the tools for this study. The researcher had her own opinions regarding the compliance of the programme, but acknowledged these and discussed the results with direct and indirect stakeholders before final conclusions were reached and recommendations were made.

There was further potential for researcher bias due to the researcher administering the questionnaires to the patient sample. However the researcher was confident in her objective capacity and that the benefits of experiencing the patients' responses and their experience of the questionnaire first hand outweighed the perceived cost and time required of involving volunteers. However the researcher's knowledge of the programme and the field of rehabilitation was considered to be a positive influence on the comprehensive interrogation of the programme.

The module chairs in reviewing the student feedback forms independently may have been biased to reflecting a positive outlook of their module. As the RPC is responsible for the rehabilitation activities, this bias is unlikely to occur. The RPC may have however been biased regarding the early phase feedback forms. This was reduced by the students also having had an opportunity to provide input via the module chairs, even if less specific. The RPC was perceived as being unbiased and very driven to developing a cost effective and efficient programme of quality and was keen to have the results of this study to achieve this aim.

The staff of the CRS who have been involved in the development of the programme and specifically the Head of the CRS who was supervising this dissertation may well have vested interests favouring a positive outcome. In defence, the personal credibility of the Head, acknowledgement of shortcomings of the programme under review and the shared desire for establishing a programme of excellence convinced the researcher that the Head has provided objective insights into the programme evaluation. The opinion of the Head of the CRS was peer balanced by including the part time contracted RPC in the same sample group.

Sampling bias may have occurred as convenient samples were used for the team members and patients who were not necessarily representative of their populations. As these samples provided an initial exploratory opinion on the indicators, the data obtained was interpreted in this light. Any new ideas generated were considered rather than just those suggested frequently. Ideally random samples should have been selected to allow for generalisation to the whole population, but that was beyond the practical, financial or time scope of this study where reviewing the indicators was not the primary aim (Trochim, undated, accessed 18/10/2010).

Sampling the sixth year students was the greatest challenge and again those that eventually did respond could have been biased positively or negatively. Al Kadri, Al-Moamary and van der Vleuten, (2009) suggested that a student's interest in a subject may influence feedback. A student who is interested in rehabilitation may perform better in an assessment and a student who performs better may have a more favourable opinion of the programme and vice versa. Of the results available (see appendix 18 for details) two students had failed and four of the eleven had achieved a distinction in one or more rehabilitation assessment. The latter may have biased responses to be in favour of the

programme. Further favourable bias could have been introduced by the students knowing the researcher and wanting to please (Ranasinghe, Wickramasinghe, Wickramasinghe, et al, 2011).

To reduce bias across the study, many of the indicators were evaluated by more than one question and from a wide range of samples. Data was also gathered to explore questions raised during the literature review. Samples thus extend beyond those directly responsible for the initial development of the programme, and included both recipients and providers of the programme, direct and indirect stakeholders. Triangulation of data from these varied sources reduced individual sample bias.

4.9.2 Validity

The set of indicators developed for this study were based on the WFME Global Standards for basic medical education which have been extensively piloted. Although adapted for the evaluation of the US MBChB Rehabilitation programme, they proved to be valid in this study as no new themes for additional indicators were raised and no responses suggested the indicators to be inappropriate. Suggestions for revision of details of certain indicators are made in the recommendations.

The tools that were developed were peer reviewed and in some cases more than once to ensure that questions obtained the information intended and that they were clear to the participants. Respondents were offered a number of opportunities to provide narrative to support the questions offered or to offer additional categories. Two questions were considered to be invalid. Firstly the term ‘standardised patient’ was not explained and may not have been understood. This was overcome by considering the results of this question in light of other data obtained. Secondly the clinical settings offered within the continuum of care did not reflect the functioning of the WC DoH at the time of data collection. Suggestions to address shortcomings in the tools are made in the recommendations.

Furthermore the results obtained, as will be discussed, for the most part confirmed the researcher’s opinions as raised in the introduction. Where there were discrepancies these could be explained or further research is indicated.

4.9.3 Reliability

Where quantitative and qualitative data was provided in the same returned questionnaire, this was cross checked. No contradiction in responses from any one respondent was found. The tools were not tested for reliability.

4.10 Chapter summary

A Logic Model approach was used to evaluate the inputs, activities and outputs of the US MBChB rehabilitation programme.

Nine study populations were identified from their direct or indirect relationship with the programme. A mixed methodology, collecting quantitative and qualitative data from samples of these study populations, was applied in a cross sectional approach. Documentation of the FHS and CRS was also identified as a source of information.

Questionnaires and two interviewing schedules were developed and peer reviewed to obtain the data from the various study samples. These were based on the 65 indicators developed from the literature specifically for this study. 109 questionnaires were e-mailed for self administration, 37 were personally delivered for self-administration and18 were researcher administered.

83 questionnaires were returned by e-mail, one of which was inadequately completed and was thus rejected. Quantitative data from the 137 questionnaires and the student results was captured using Microsoft Excel© and was statistically analysed for percentage agreement over all sample groups per indicator. Where the chi-squared test showed a significant relationship between sample groups and responses, the agreement of the sample groups was further analysed for significance. To determine significance of agreement a null hypothesis that half the group would agree with the statement and half would not was used with a p value of less than 0.05 determining significance.

Qualitative data from the interviews was captured using Microsoft Word© and together with relevant narrative from the questionnaires complemented the quantitative data to address the three objectives 4, 5 and 6, namely: to measure the compliance of the programme with the indicators, to make recommendations for improvement of the US MBChB disability and rehabilitation training programme in the SA context, and to review the indicators and instruments used in this study for the purposes of ongoing monitoring of the programme.

Ethical approval was obtained for the study. Individuals participated voluntarily and permission was obtained from the FHS, US and clinical facilities for the inclusion of their students and patients respectively. Only group 1 of the student sample participated anonymously, but all data collected was handled confidentially.

Bias of the researcher and individual sample participants as well as sampling bias was anticipated for and countered through triangulation and expert opinion. Questions against all but two indicators were considered to be valid. The tools were not tested for reliability.

Chapter 5

Presentation of results

5.1 Introduction

In order to evaluate the Rehabilitation programme of the MBChB curriculum, of the FHS, US, interviews, questionnaires and documentation reviews were used to obtain quantitative and qualitative data according to the methodology developed for this study. The data was collected between March and September 2011 and was analysed. The results of the analysis are presented in this chapter according to the sequence of the indicators. An in depth discussion of these results takes place in chapters 6 and 7.

5.2 Presentation of results of interviews, questionnaires and document review according to each indicator

For each section the indicator is given followed by the percentage agreement according to the quantitative data. Results for groups of related indicators are given in histograms with the following shading indicating the significance of the agreement or disagreement.

 Insignificant agreement/disagreement

 Significant agreement

 Significant disagreement

The name of each bar in the histogram uses a key word linking it to the indicator or category. The p values are given in tables below each histogram. As p values are dependent on sample sizes which for some indicators were small, the number of respondents (represented by ‘n’) for each question is also given. The sample groups responding are given using the codes in table 4.8.

Results are given for the aggregate sample. Where the chi-squared test showed that there was a significant relationship between the percentage agreement and the sample group to which the respondent belongs, a histogram of the responses per sample group is also given for the indicator. The sample group that provided data against each indicator is contained in Appendix 6.

All indicators are represented positively. For example, where the question was asked if student clinical placements burden community resources (Question 2.6a), this is represented positively in the histogram as 'student placements do not burden community resources'.

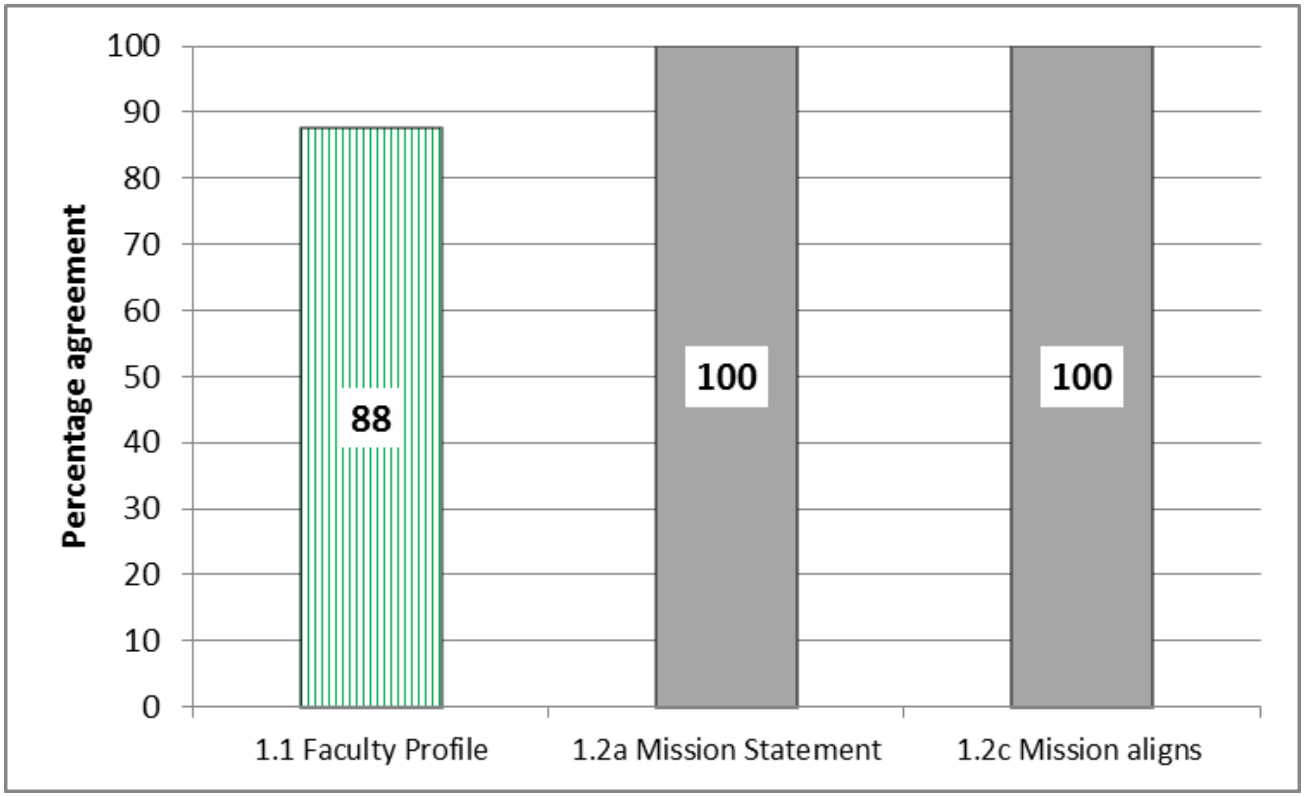
Qualitative data from the interviews and narrative from open ended questions is presented against the most relevant indicator. Some respondents provided clarification alongside closed questions and this was also analysed. Qualitative data was analysed according to the existing themes as created for the questionnaire after which additional categories were created. The number of respondents referring to a theme is given in brackets after the title of the theme. Where explanatory quotations were provided they are used as representations of similar quotations or ideas and are referenced according to the codes used for the sample participants.

5.2.1 Mission and objectives

Indicators

- 1.1 The Rehabilitation programme objectives (to produce a doctor who can manage persons with disabilities within the primary health care setting) and competencies (as contained in the study guides) align with the faculty mission (or Profile of the Stellenbosch Doctor).
- 1.2 If the department delivering the Rehabilitation programme (CRS, US) has a mission, this aligns with the programme objective and competencies. If there is a mission statement, this should be stated.

Results



sample no (n)	8 (MC, CM)	2 (CM)	2 (CM)
p	0.039	0.240	0.240

Figure 5.1 Percentage agreement: Alignment of the programme

There was a significant agreement that the objectives and competencies of the Rehabilitation programme align with the FHS, US's Profile of the Stellenbosch doctor. The interview with the Head of the CCE revealed that the Profile of the Stellenbosch Doctor had been revised in 2008,

"*We changed it specifically to make more provision for the concept of inter-professionality and the two year internship*".

The profile reads as follows:

"*the recently graduated Stellenbosch doctor must possess the necessary knowledge, skills and attitudes to optimally utilise the opportunities available during the internship so as to be able to function autonomously in the primary health care sector thereafter, and must be equipped with the necessary ability and insight to develop personally and professionally."*

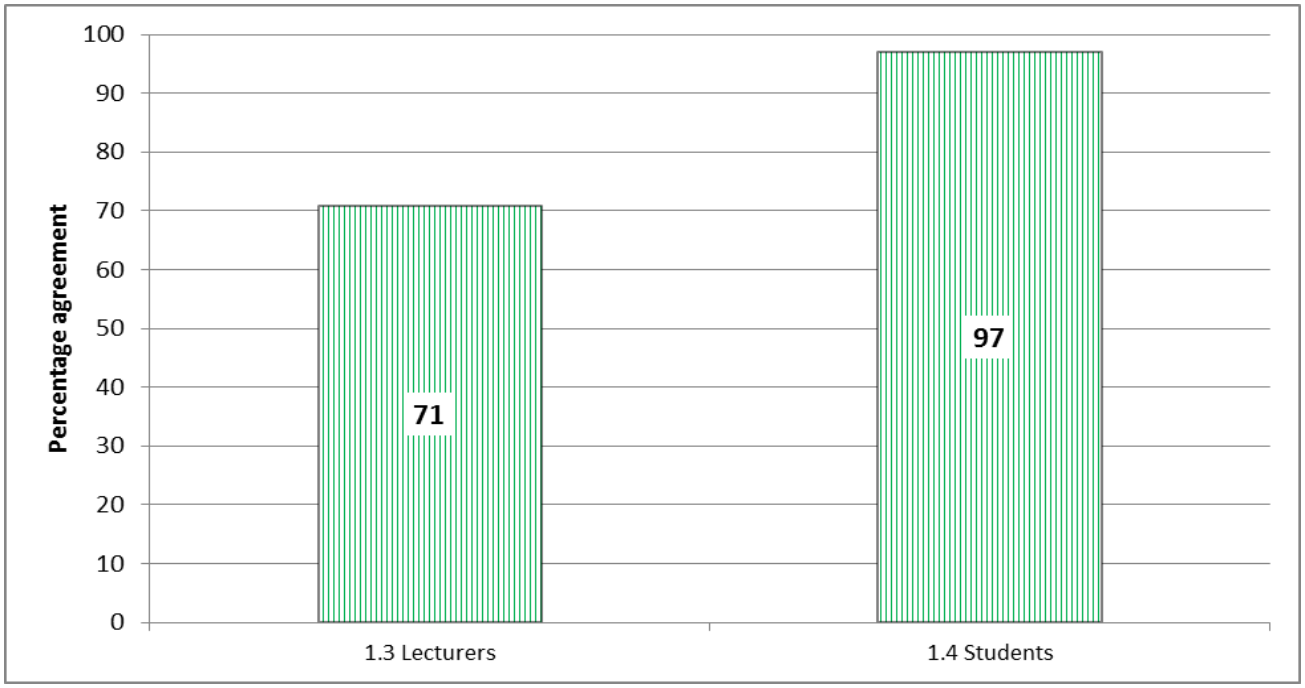
There was 100% agreement that the CRS has a mission statement and that it aligns with the Rehabilitation programme. This was statistically insignificant due to the small sample number of two but as these were the only sample participants who could respond to this indicator, the results are relevant. The mission statement was consistently quoted as follows:

"*The Centre is a committed, co-ordinating and directive institution that aims at excellence in addressing the current need for advanced interdisciplinary studies, research and service in the disability- and rehabilitation-related fields. This is achieved by education and training of health professionals from a variety of backgrounds, to have the necessary clinical decision-making, managerial, educational and research knowledge, skills and socio-political attitudes, to assume positions of consultancy and leadership within the Rehabilitation field. The Centre's mission is underpinned by the principles of the comprehensive primary health care approach and will be realized by working in collaboration with the disability and service sectors*." (CM2, 3)

Indicators

- 1.3 The objective and competencies are communicated to Rehabilitation programme lecturers and facilitators. 1.4 The objective and competencies are communicated to students (e.g. in the study guides and introduction sessions).

Results



sample no (n)	24 (MC, CM, L)	33 (MC, CM, L, S6)
p	0.033	0.000

Figure 5.2 Percentage agreement: Objectives and competencies are communicated

There was significant agreement that the objectives and competencies are communicated to both the group of lecturers, site co-ordinators, facilitators and assessors as well as students. All though the lecturer response was significantly positive, there is room for improvement.

5.2.2 Educational programme

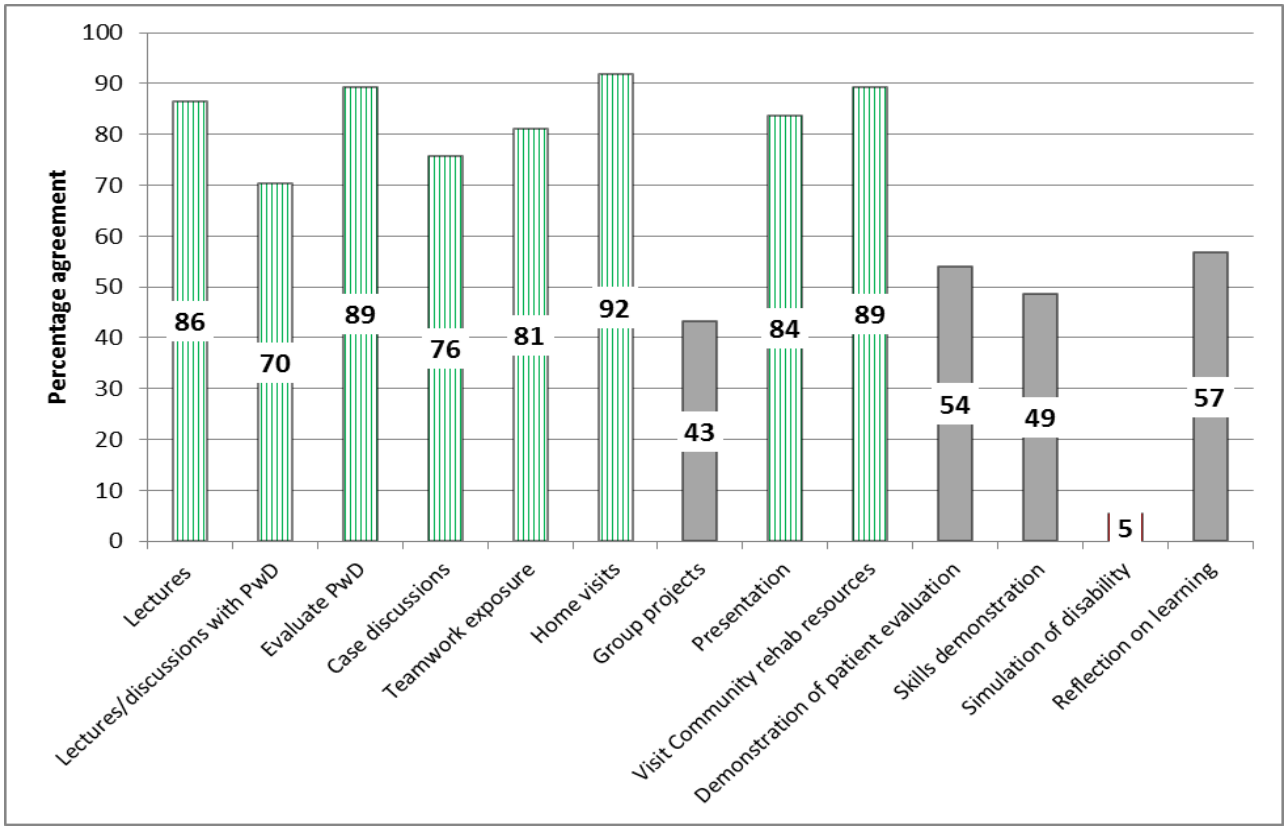
5.2.2.1 Methods and activities

Indicators

- 2.1 A variety of educational methods or activities are used.

Apart from the list provided, an option for other was given to establish if the list was complete for methods currently used. Participants were also asked to volunteer additional methods that could be used. Students were asked what methods they found the most and least useful.

Results



Educational method	Lectures	Lectures/discussions with PwD	Evaluate PwD	Case discussions	Team work exposure	Home visits	Group projects	Presentation	Visit Community rehab resources	Demonstration of patient evaluation	Skills demonstration	Simulation of disability	Reflection on learning
sample no (n)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.000	0.011	0.000	0.001	0.000	0.000	0.255	0.000	0.000	0.371	0.500	0.000	0.255

Figure 5.3 Percentage agreement: Educational methods used

A variety of educational methods were offered in the questionnaires. There was significant support that eight of the 13 methods are used. This as a percentage was however not significant (p=0.290). The use of 10 of the 13 methods would have been significant. Group projects, skills demonstration and simulation of a disability were not significantly agreed as being used. This was echoed in 18 comments that referred to the need for practical demonstration of skills such as wheelchair positioning, transfers, position in lying, stump bandaging. L1 raised the concern:

"*I do think the above methods are great, but am not always sure that ALL students get the same exposure. For example I marked demo of skills because I show them a wheelchair when the patient has one, but it is not always the case and that all students could get the same exposure*".

No additional methods that are used by the programme were listed in the open ended questions.

On analysing students' preferences in the open ended questions, the 37 third year students who had not yet received any rehabilitation training and the 11 sixth year students who had experienced all the rehabilitation exposures, highlighted the following:

- 26 students found lectures useful as long as they were clinically applicable, properly outlined, interactive, had media sources (pictures and videos (7 students)), provided visual stimulation, without the lecturers reading from the slides (S3-20). Eight students found lectures unhelpful.
- 34 students felt they learnt the most from patients, especially when clinical exposure followed shortly after theoretical teaching (2 students). Two students valued patient testimony and S3-26 wrote;

"*when we learn about a condition in class and the lecturer brings in a person with that condition to speak to us*".

S6-3 asked for more patient exposure and S6-4 for more patient variety.

- Case discussions (16 students) and team work could be useful (10 students) and fun if better structured (2 students) as this occurs in smaller groups allowing better interaction with patient and clinician. Six students found case discussion not useful and nine found team work not useful. S6-6 asked for more team work and found it useful as a learning method.
- 20 students wrote that group research projects and presentations to the class were not useful. S3-7 commented that

"*you tend to only remember the assignment that you presented and not the others*"

- Sixth year students valued visits to community resources and requested more exposure such as spending a day at the WCRC (3) L1 remarked that

"*students have previously suggested to spend a day at WCRC to have a clear understanding of the treatment of the patient and how the team works*".

This was supported by a lecturer and CRS manager. Other community resources used by rehabilitation clinicians were NGOs which deliver home based care, NGOs such as APD, Hospice and group homes e.g. Cheshire homes.

- Practical demonstration of skills and simulation of disability was valued by 19 students.

Additional activities suggested that could be considered for delivery of the programme were:

- Formative assessments during the block with feedback to students while on the rotation (2 students)
- Accompanying a patient to a SASSA office (L4)
- Live in with a disabled person for a weekend (L8)
- Two students volunteered that they did not find role play useful.

Although S6-2 valued the projects as a learning tool, two sixth year students felt the programme they had experienced as too theoretical with too much emphasis on the projects as quoted below:

"*When it comes to rehabilitation it is not just pure facts but an outlook on patient centeredness*" (S6-4)

"*if the things we had to do for the rehabilitation did not count for marks then most of us won't even put the effort in to show up". "It should be fun as well as educational and that shouldn't be any overkill*" (S6-2).

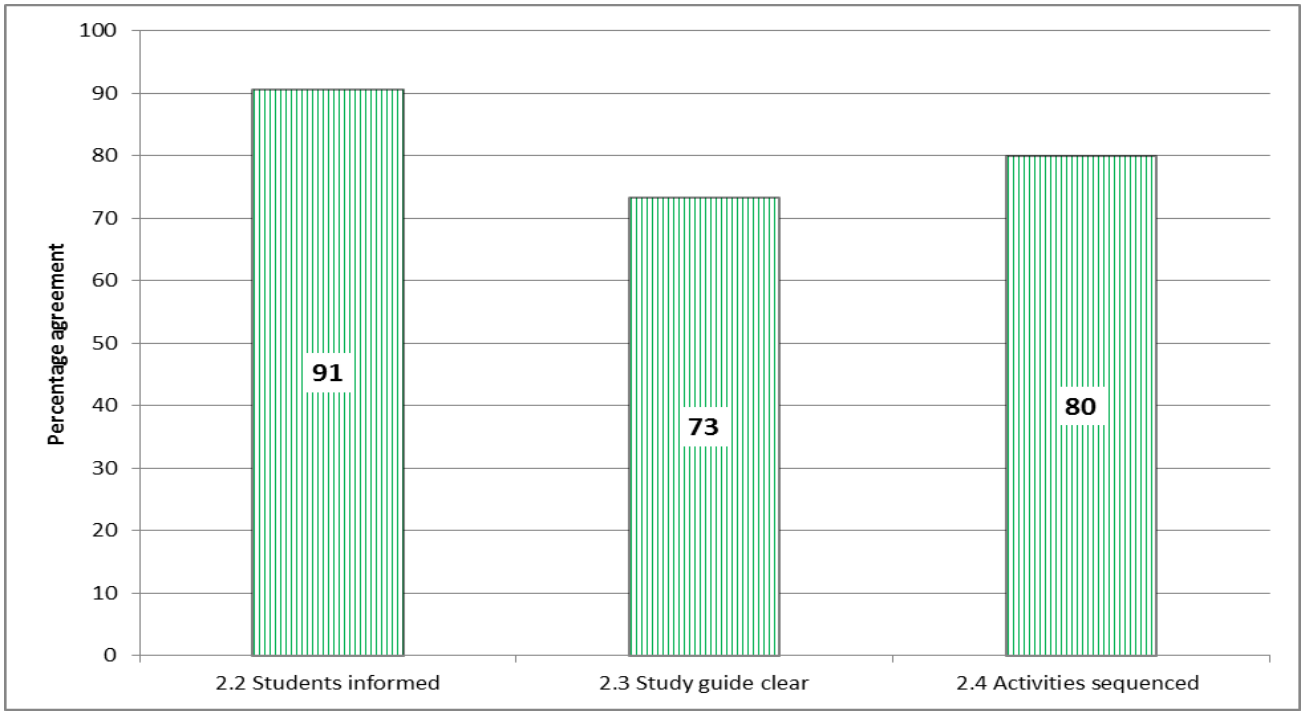
Indicators

- 2.2 The students are prepared for the educational methods or activities (e.g. in the study guides and introduction sessions).
- 2.3 The study guides clearly (in terms of format and readability) convey all relevant information (objectives, competencies, education methods or activities, sequencing of activities, assessment methods, etc).

• 2.4 The activities are sequenced so that students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability.

In line with this indicator the results of the theory block test and exam results were analysed to determine if there was any significant difference between groups 4 and 5 who receive their mid and theory exposures in opposite sequence.

Results



sample no (n)	32 (MC, CM, L, S6)	30 (MC, CM, L, S6)	30 (MC, CM, L, S6)
p	0.000	0.009	0.001

Figure 5.4 Percentage agreement: Communication and sequencing of activities

There was significant agreement that the students are informed of the educational methods and activities to be used (e.g. interdisciplinary team work, patient contacts, teaching by doctors, therapists and patients), that the study guides clearly convey all the relevant information and that activities are sequenced so that students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught general knowledge and skills in order to manage a person with a disability.

From the narrative data there was however criticism that "*there is no continuation of what is being done from the first year to late phase*" (CM3), but S3-29 counters this by noting that they "*have not had a lot of exposure so far*".

S6-4 suggested that: "*students should be exposed / taught the basic principles of rehab early in the program, during a dedicated theoretical and clinical block. Then, during their final student intern (S.I) rotation, each medical and surgical speciality through which they rotate, should focus part of their time on rehab. In this way, the students in their S.I rotations will get more detailed exposure to each speciality's management of specific rehab patients*." This linked to indicator 2.15 regarding integrating rehabilitation teaching across the curriculum.

There was concern that the sequencing of the mid and theory exposures may impact on student results. The student results were analysed to ascertain if there was any significant difference between group 4 who had only had the theory block training when writing the theory test and exam and 5 who had had the mid phase and theory training when writing the same test and exam. The analysis was repeated for both the test and exam results for both the 2008 and 2009 theory blocks.

- Analysis theory test 2008

The analysis of variances (ANOVA) test shown below in figure 5.5 showed no significant difference between the means of groups (labelled POPULATION on the x axis) 4 and 5 for the 2008 theory test results (p=0.632).

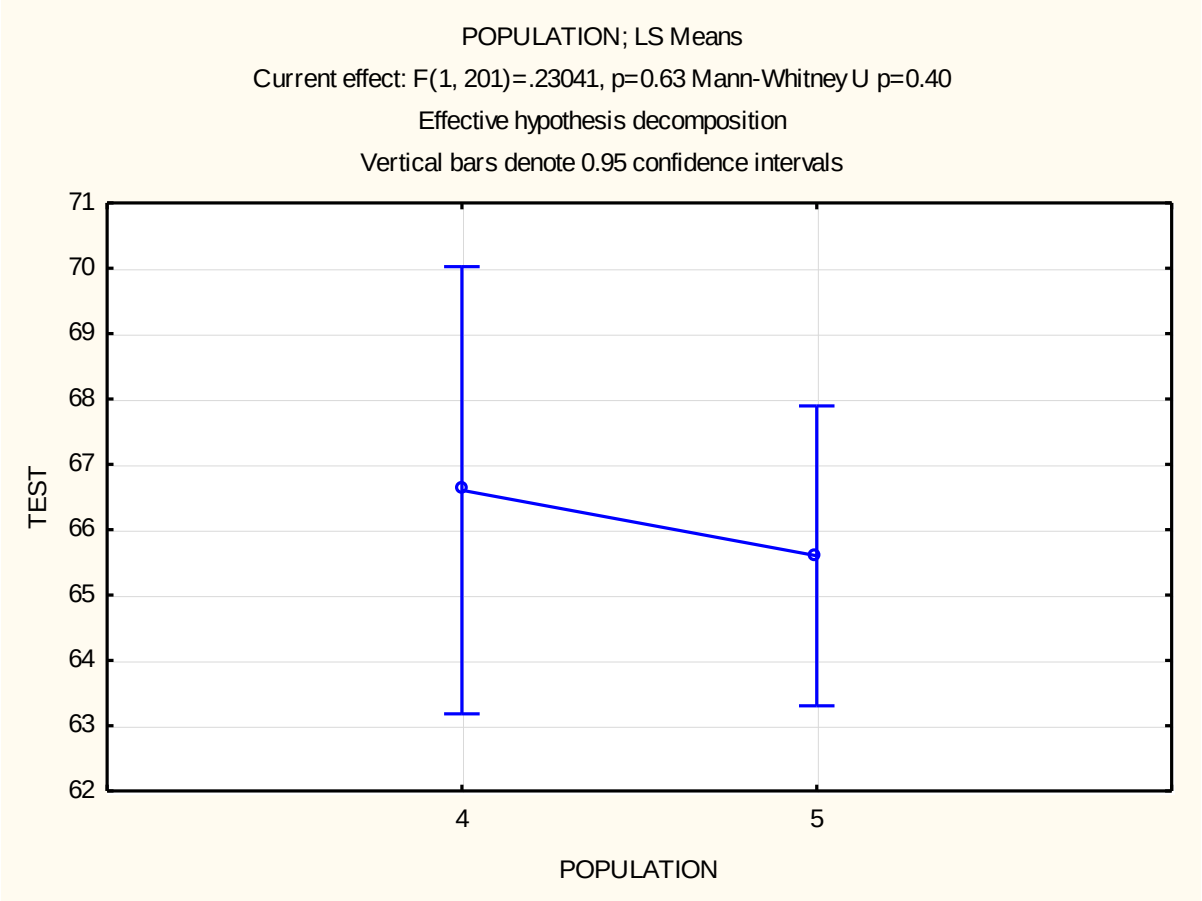


Figure 5.5 Comparison of means of sample group 4 and 5: theory test written in 2008

A plot of raw residuals in figure 5.6 below showed that the majority of the residuals follow the line.

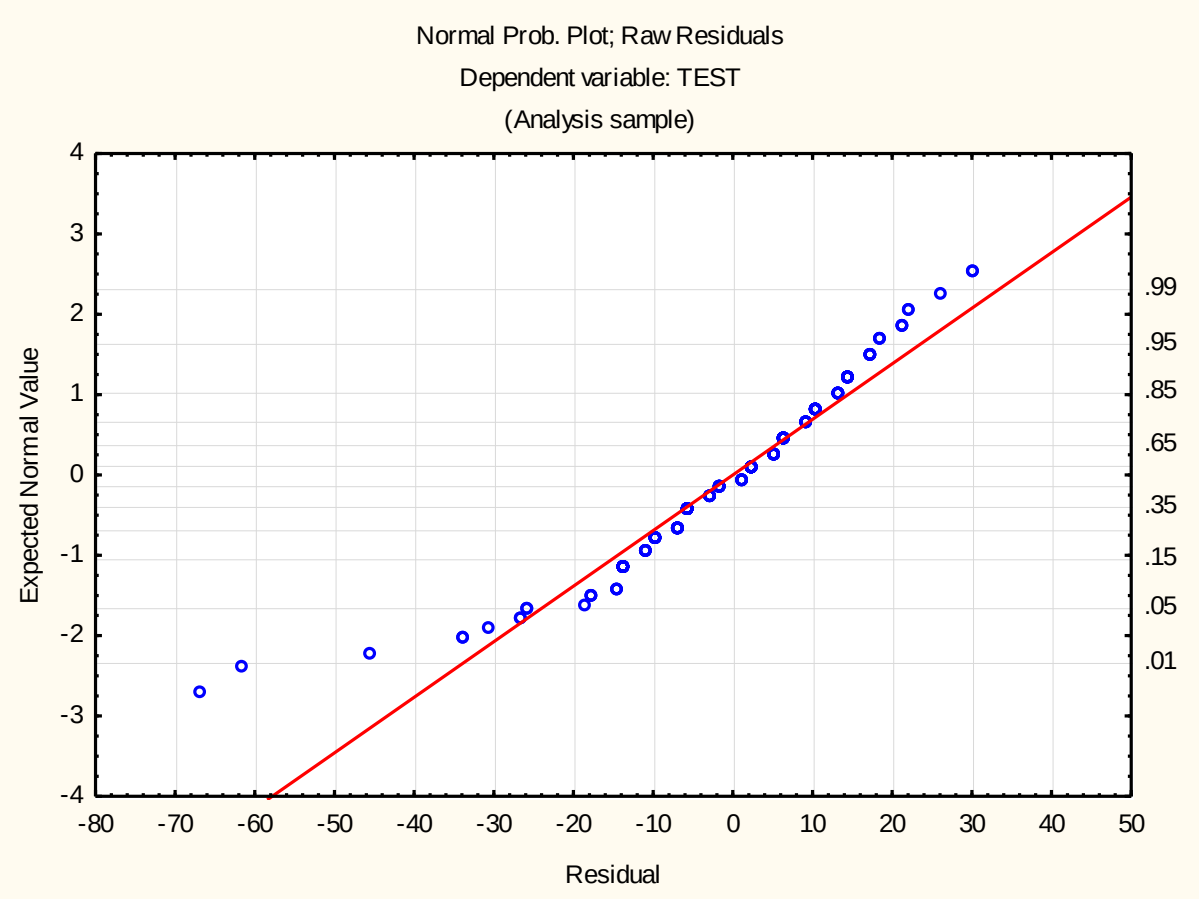


Figure 5.6 Plot of raw residuals sample group 4 and 5: theory test written 2008

The statistician however reported that the Shapiro-Wilk test showed that the residuals were significantly not normally distributed (p=0.000). The Mann Whitney test, a non-parametric test was then done which also showed that there is no significant difference between the mean results of the two groups (p=0.395). Group 4's mean was insignificantly higher than that of group 5.

- Analysis theory exam 2008

The ANOVA test showed no significant differences between the means of groups 4 and 5 of the 2008 theory exam results (p=0.541).

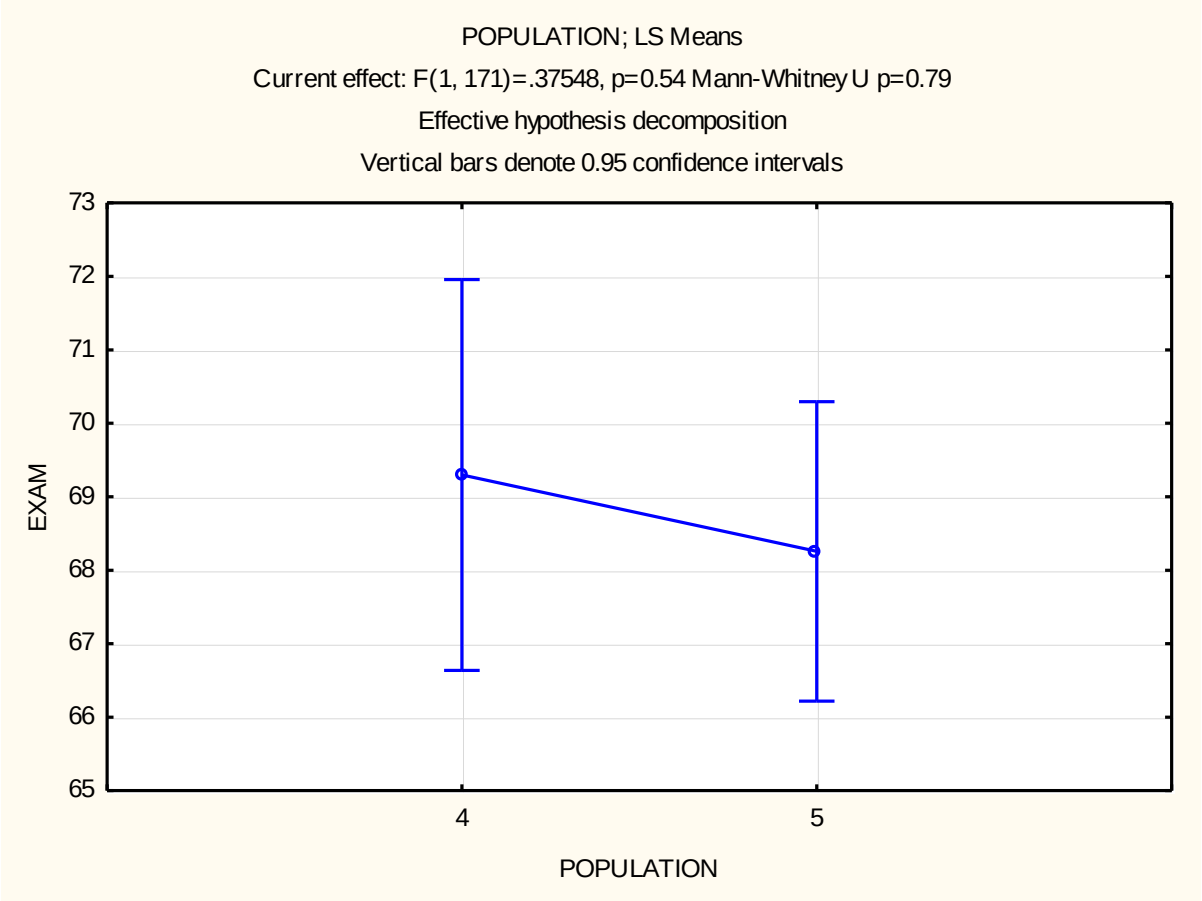


Figure 5.7 Comparison of means of sample group 4 and 5: theory exam written in 2008

The raw residuals, although following the line in the figure below, were significantly not normally distributed according to the Shapiro-Wilk test (p=0.008).

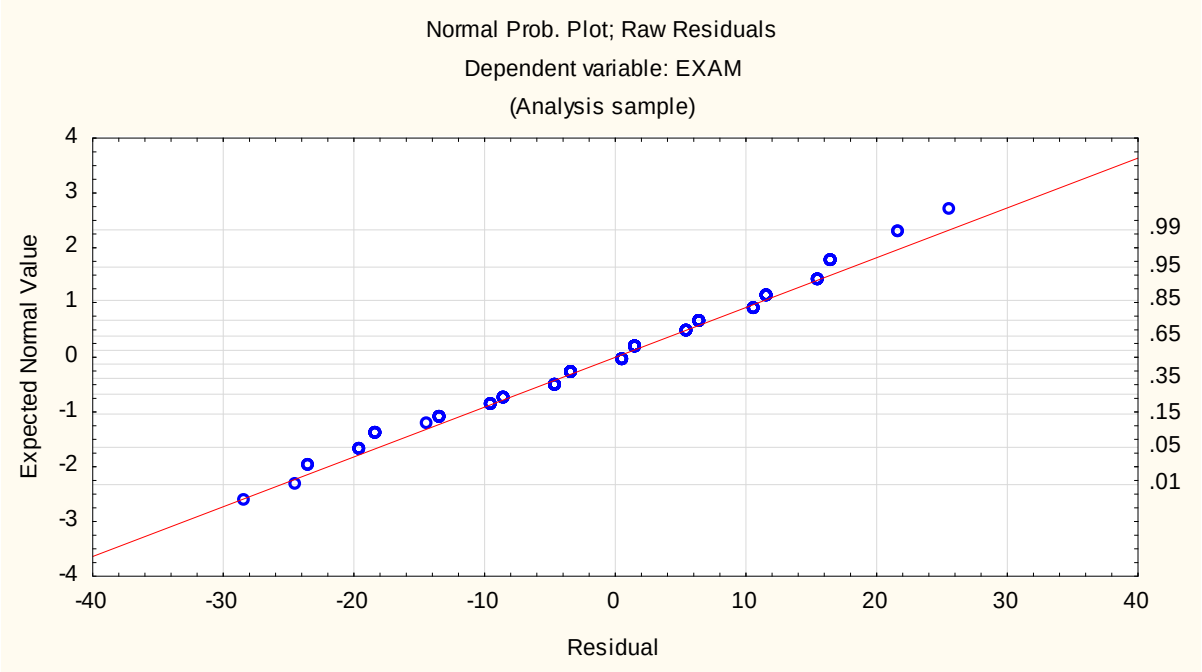


Figure 5.8 Plot of raw residuals sample group 4 and 5: theory exam written 2008

Although the mean of group 4 was higher than that of group 5 this was insignificant according to the Mann Whitney test (p=0.786).

- Analysis theory test 2009

There was no significant difference between the means of groups 4 and 5 in the 2009 theory test (p=0.507) according to the ANOVA test (see figure 5.9 below)

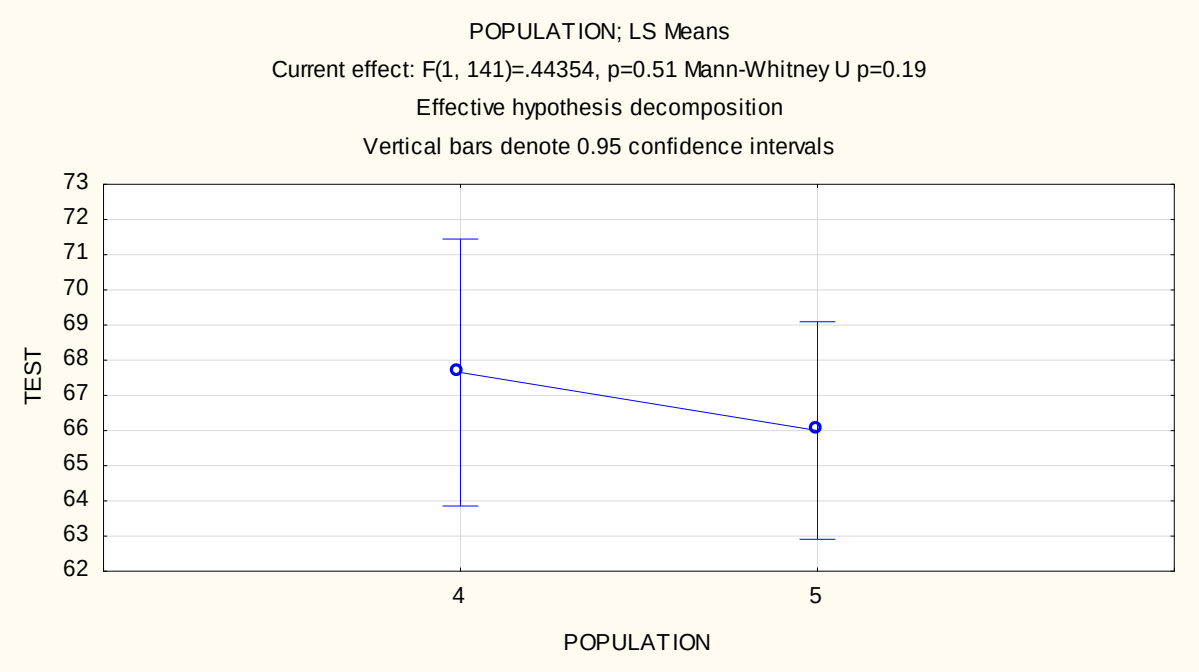


Figure 5.9 Comparison of means of sample group 4 and 5: theory test written 2009

The raw residuals shown in figure 5.10 significantly did not follow a normal curve (p=0.000 on Shapiro-Wilk test).

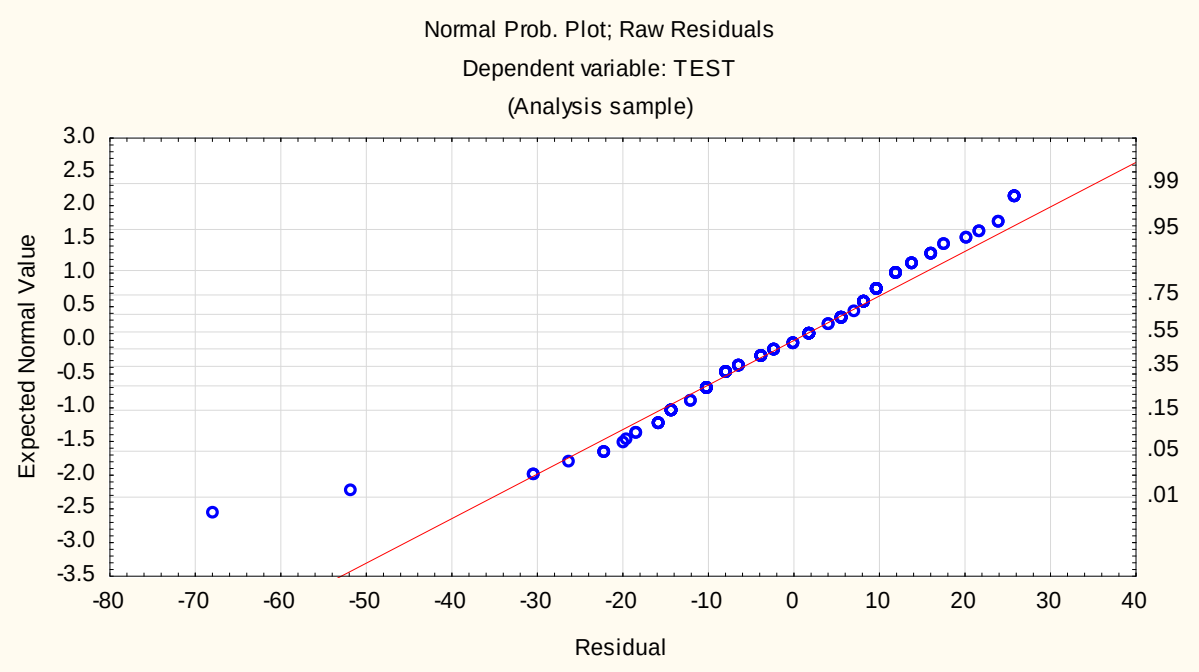


Figure 5.10 Plot of raw residuals sample group 4 and 5: theory test written 2009

The Mann Whitney test was done which showed no significant difference between the means group 4 and 5 (p=0.184), with the mean of group 4 again being higher than group 5.

- Analysis theory exam 2009

The ANOVA test, in figure 5.11 below, showed no significant difference between group 4 and 5 for the 2009 exam results (p=0.501)

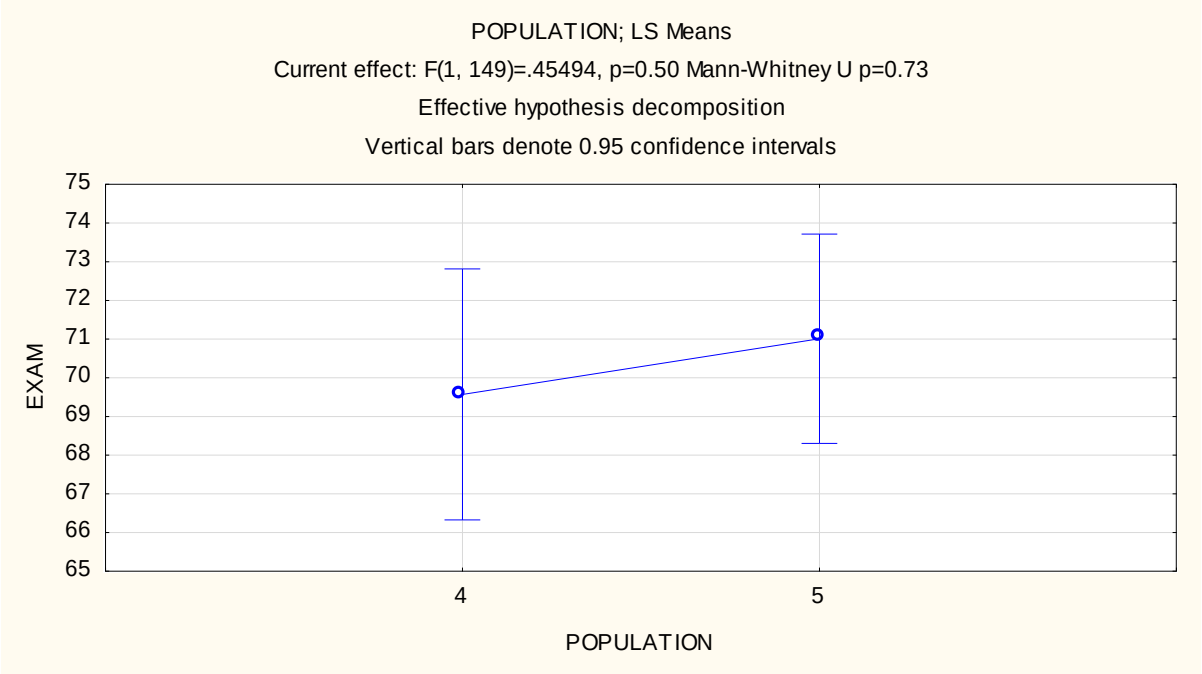


Figure 5.11 Comparison of means of sample group 4 and 5: theory exam written in 2009

The raw residuals in figure 5.12 below were significantly not normally distributed with a p value of 0.001.

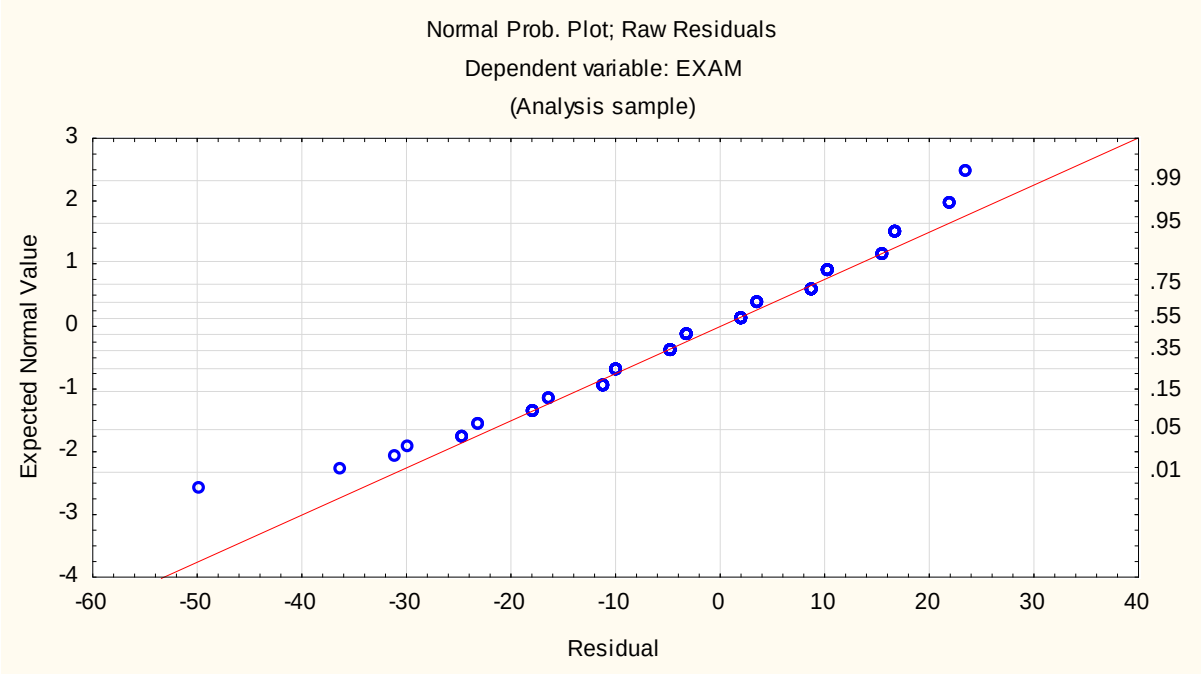


Figure 5.12 Plot of raw residuals sample group 4 and 5: theory exam written 2009

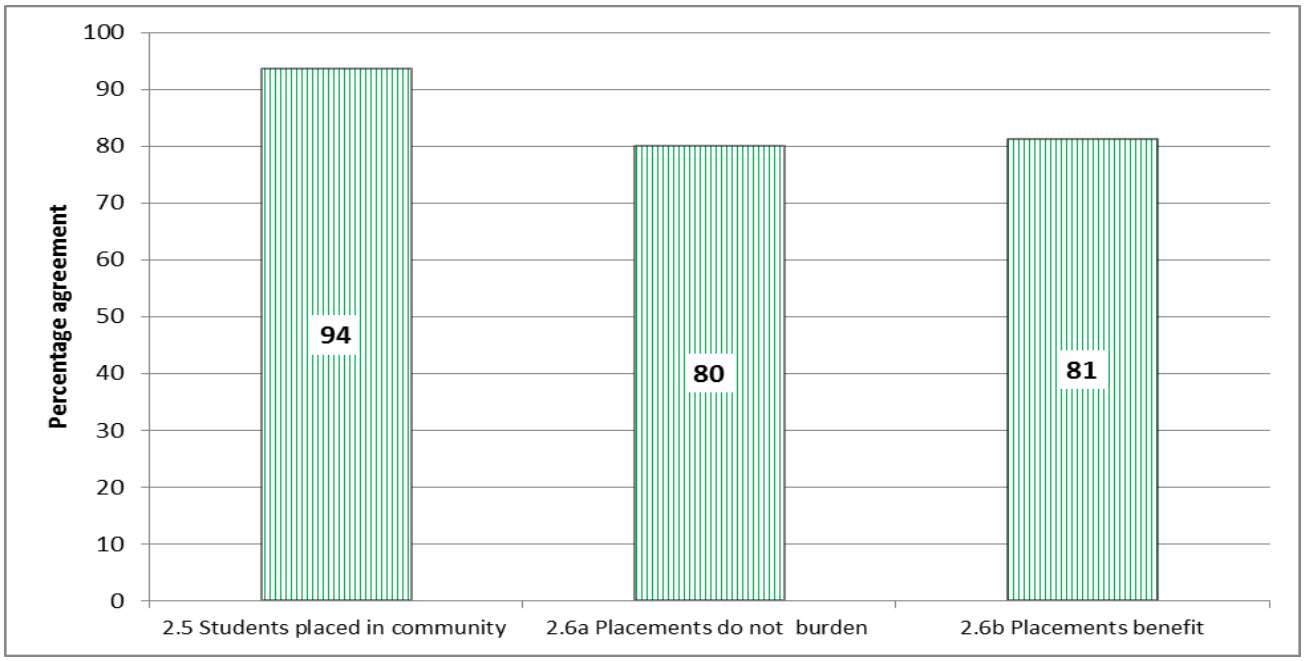
For this set of student results the mean of group 5 was higher than that of 4 but insignificantly so according to the Mann Whitney test (p=0.725).

These results showed that there is no significant difference in the student results of groups 4 and 5. The sequencing of activities and exposure to the mid and theory block thus did not impact on the students results. The data was not analysed for other possible confounders that could have influenced results e.g. student result profile, gender, age, etc.

Indicator

- 2.5 Students are placed in clinical community rehabilitation settings for Rehabilitation programme activities.
- 2.6 Clinical placements support and do not burden the community rehabilitation resources (e.g. facilities, staff, patients and their carers).

Results



sample no (n)	31 (MC, CM, L, S6)	75 (MC, CM, L, S6, T, P)	75 (MC, CM, L, S6, T, P)
p	0.000	0.000	0.000

Figure 5.13 Percentage agreement: Community clinical placements

There was a significant agreement that students are placed in the community for clinical Rehabilitation programme activities. Two questions were asked to determine the impact of student clinical placements on community resources. The answers were not mutually exclusive and the overall impact was significantly positive. As can be seen from the following figure, 61% of respondents indicated that the placements do not burden, but also benefit the community resources. 20% said that despite being burdened there was a benefit and a further 19% said that there was no impact i.e. no burden or benefit. None of the respondents were of the opinion that there was only negative impact i.e. burden and no benefit.

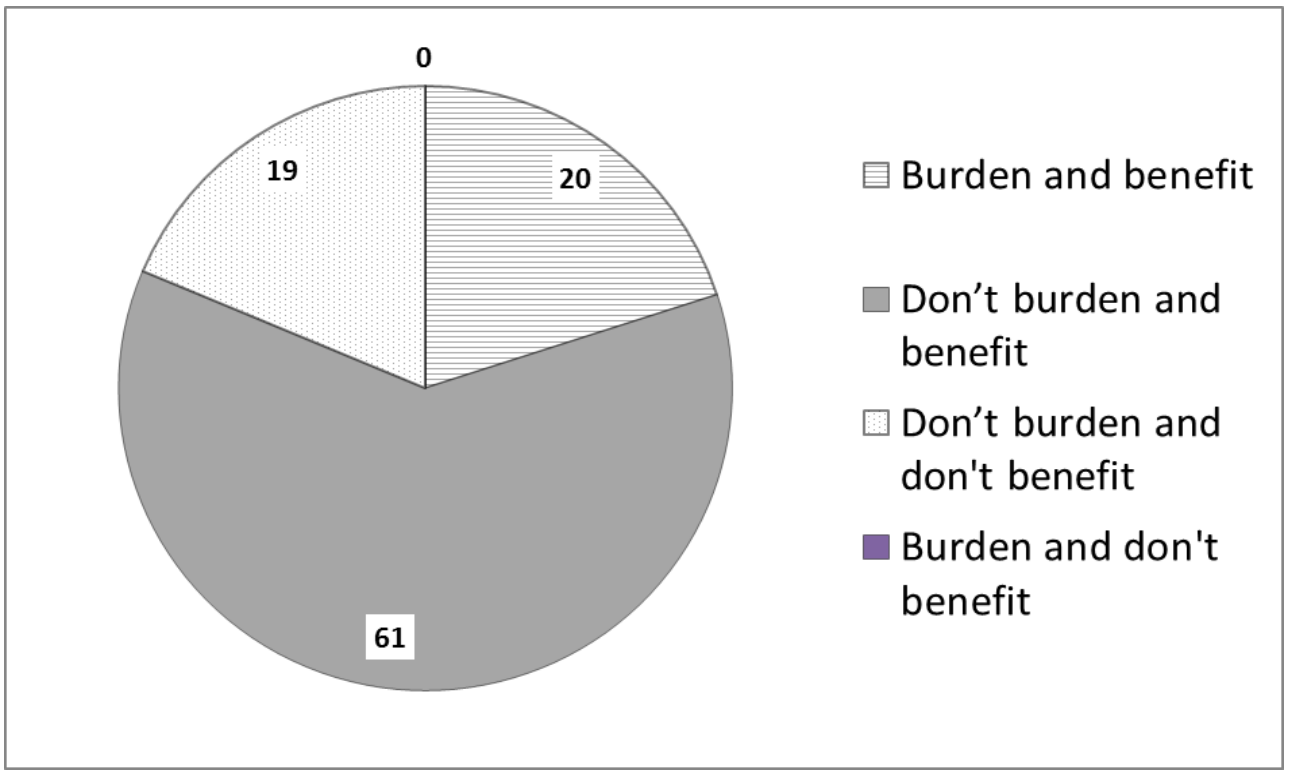


Figure 5.14 Burden and benefit of student community clinical placements

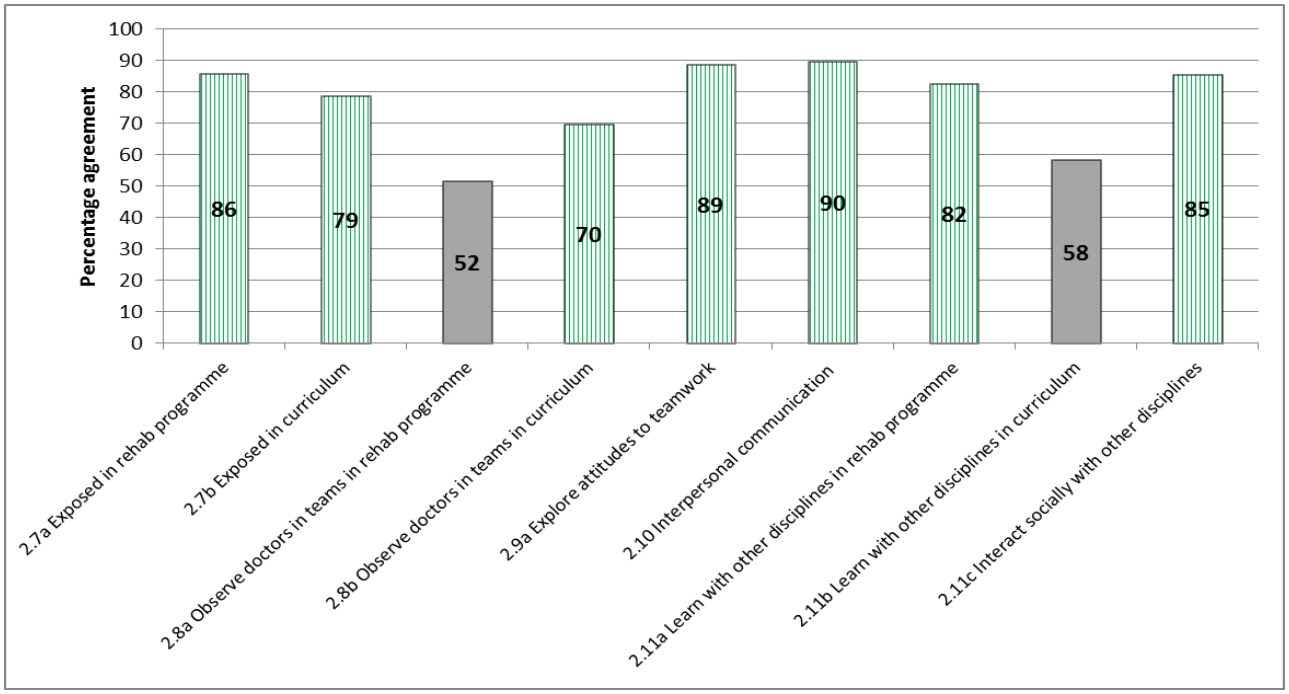
Indicator

- 2.7 The students are exposed to inter or multi-disciplinary team work during Rehabilitation programme activities (mandatory) or during other programmes in the curriculum (preferred).
- 2.8 The students observe doctors functioning within inter or multi-disciplinary teams during the Rehabilitation programme (mandatory) or during other programmes in the curriculum (preferred).
- 2.9 The Rehabilitation programme provides an opportunity for students to acknowledge and explore attitudes towards teamwork.

Although not part of the indicators, the researcher wished to explore if students value teaching by members of the interdisciplinary team in the same way as that by medical doctors. This was added as an extra question.

- 2.10 Inter personal communication is addressed during the activities of the Rehabilitation programme.
- 2.11 Medical students socialise with other disciplines formally (e.g. combined educational activities) (mandatory) or informally (e.g. on campus, privately) (preferable).

Results



IPL activity	2.7a Exposed in rehab programme	2.7b Exposed in curriculum	2.8a Observe doctors in teams in rehab programme	2.8b Observe doctors in teams in curriculum	2.9a Explore attitudes to teamwork	2.10 Interpersonal communication	2.11a Learn with other disciplines in rehab programme	2.11b Learn with other disciplines in curriculum	2.11c Interact socially with other disciplines
sample no (n)	35 (MC, CM, L, S6)	47 (S3, S6)	31 (MC, CM, L, S6)	46 (S3, S6)	35 (MC, CM, L, S6)	29 (MC, CM, L, S6)	34 (MC, CM, L, S6)	48 (S3, S6)	48 (S3, -6)
p	0.000	0.000	0.500	0.006	0.000	0.000	0.000	0.156	0.000

Figure 5.15 Percentage agreement: Inter-professional learning

There was significant agreement that students are exposed to inter or multidisciplinary learning in both the Rehabilitation programme and in the whole MBChB curriculum. Students significantly observe doctors functioning within inter or multidisciplinary teams in the MBChB curriculum as a whole but not to a significant extent within the Rehabilitation programme (52%).

The agreement that students explore attitudes to team work and interpersonal communication is addressed in the programme was significant. Attitudes to team members were reflected in the value students placed on teaching received by members of the interdisciplinary team, versus teaching by rehabilitation doctors. Figure 5.16 shows there is an almost 84% (51.61% + 32.26%) agreement that students value teaching by team members equal to or greater than that of rehabilitation doctors.

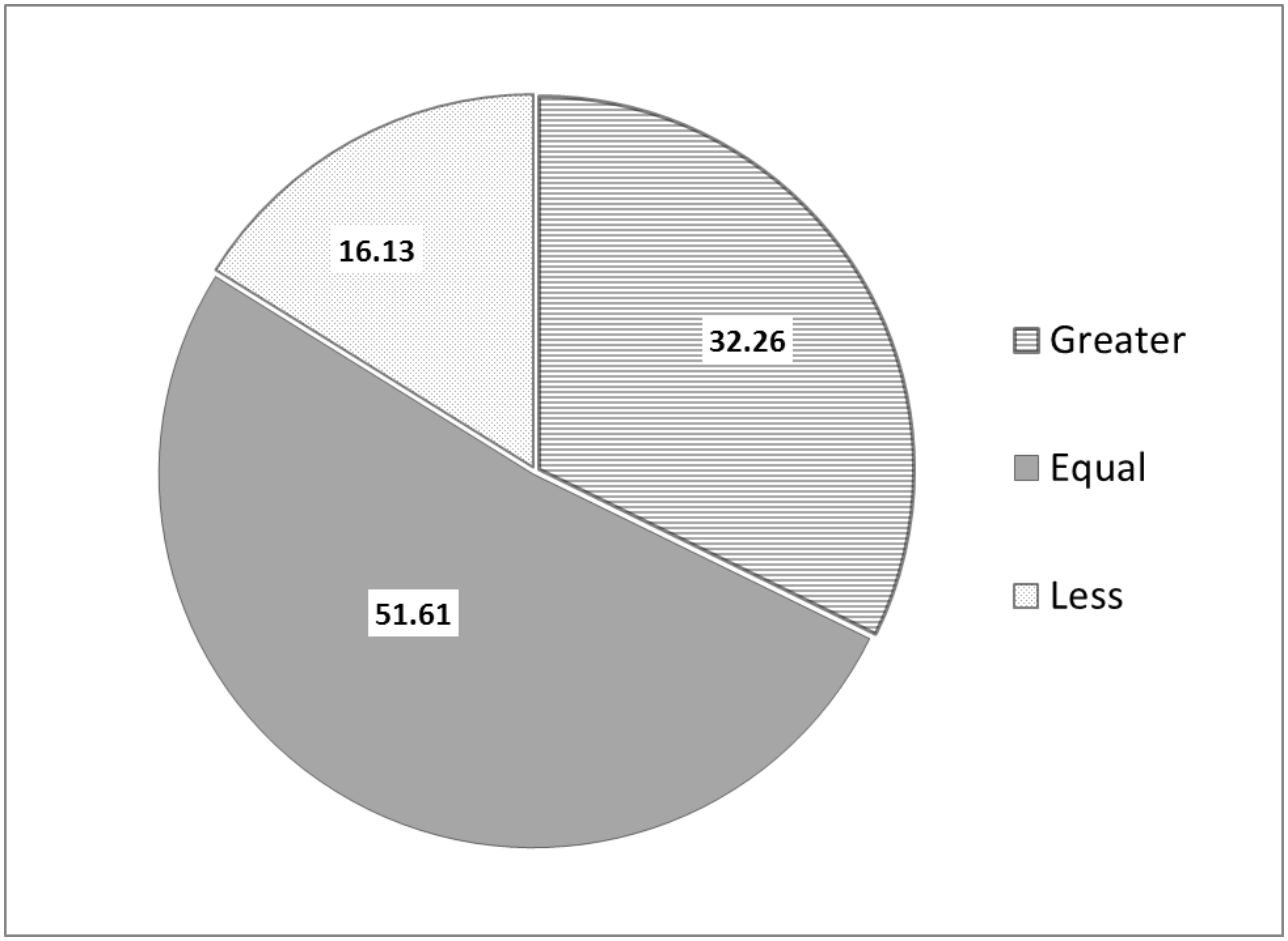


Figure 5.16 Value students place on teaching by interdisciplinary team members versus rehabilitation doctors

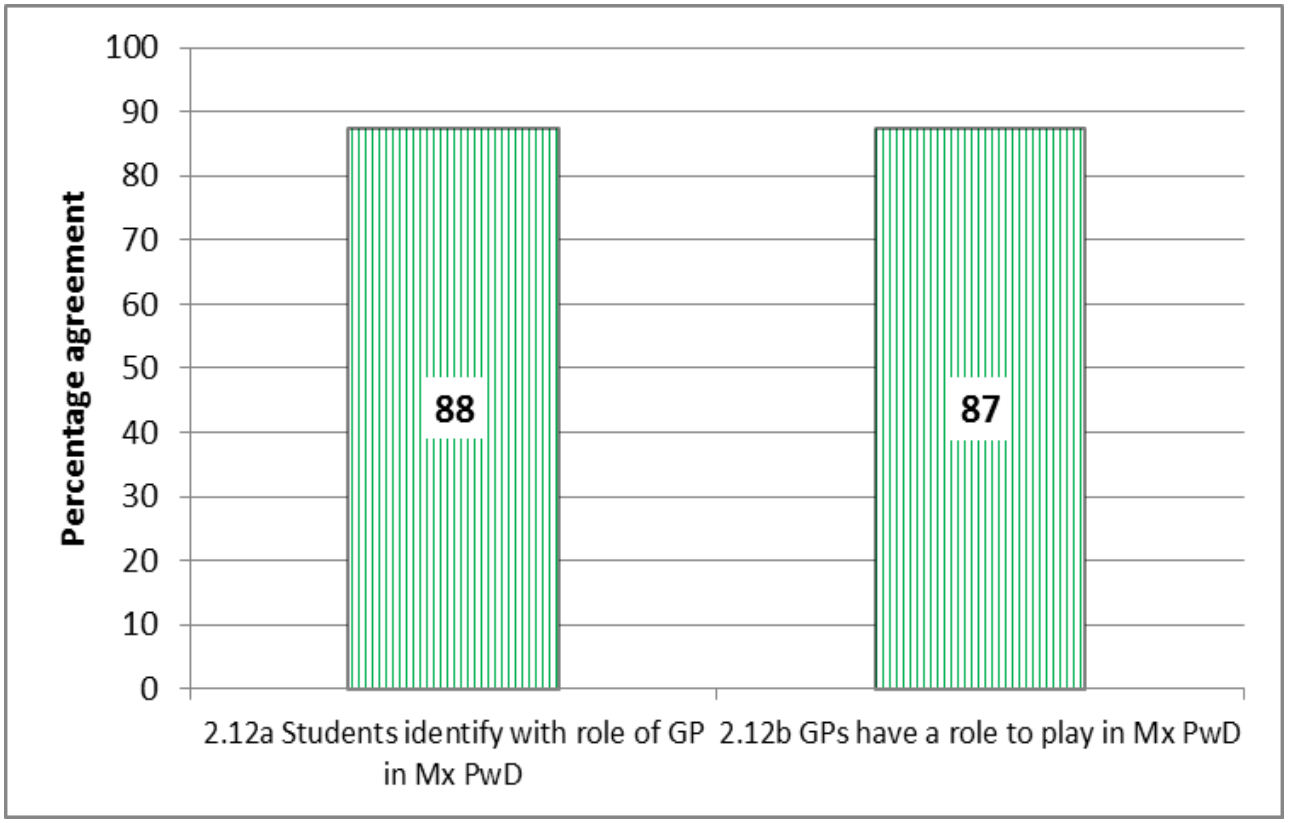
Although students significantly learn with students from other disciplines in the programme, this was insignificantly so in the curriculum. Students do however interact significantly socially with students from other disciplines. The Head of the CCE felt that the gap is closing between disciplines and that socialisation may occur as medical residences are not segregated for the different disciplines.

Indicator

- 2.12 Students identify with, through observation, the role that GPs have in managing persons with disabilities in the community.

An additional question was asked to establish respondents' opinions regarding the role of GPs in managing persons with disabilities in the community.

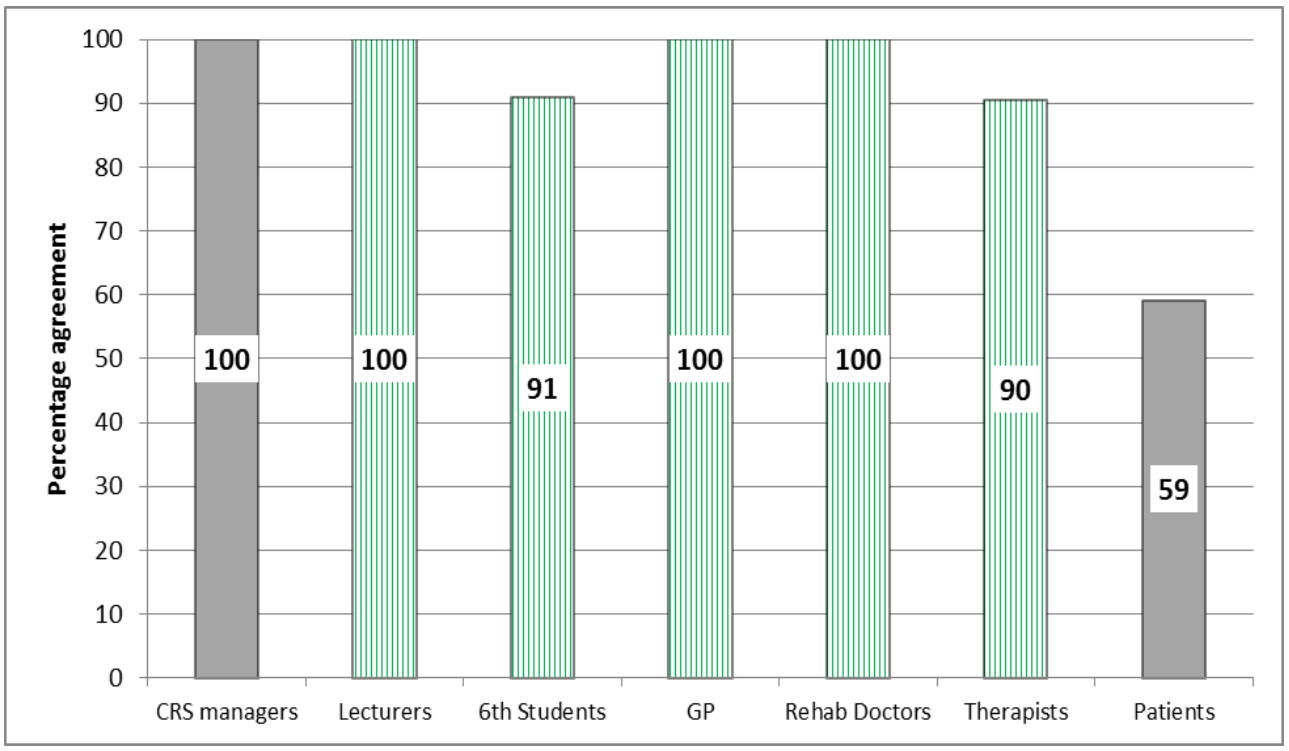
Results



sample no (n)	32 (MC, CM, L, S6)	95 (CM, L, S6, GP, RD, T)
p	0.000	0.000

Figure 5.17 Percentage agreement: Role of GP in managing persons with disabilities in the community

Although there was significant agreement over the aggregate sample with these two indicators, the chi-squared test for question 12b (GPs have a role to play in the management of persons with disabilities) showed that there was a significant relationship (p= 0.029) between the responses and membership to each of the seven sample groups. Figure 5.18 shows the agreement of each sample group.



Sample no (n)	3	18	11	10	10	21	22
p	0.124	0.000	0.008	0.002	0.002	0.000	0.261

Figure 5.18 Percentage agreement of each sample group: GPs have a role to play in managing persons with disabilities

The agreement by the CRS managers was statistically insignificant due to the small sample size, but again as this was the whole of the sample group, the result was relevant. The discrepancy for patients' opinion as to the role of the GP in managing persons with disabilities in the community was supported by the following statements:

"*Doctors don't know how to work with or treat patients with stress*" (P2),
"*There is no medication that can treat intellectual disability therefore the doctor cannot help*" (P4),
"*Doctors don't have knowledge of prosthetics*" (P7)
"*Community health centre doctors are not accessible*" (P19).

Insightfully two patients suggested:

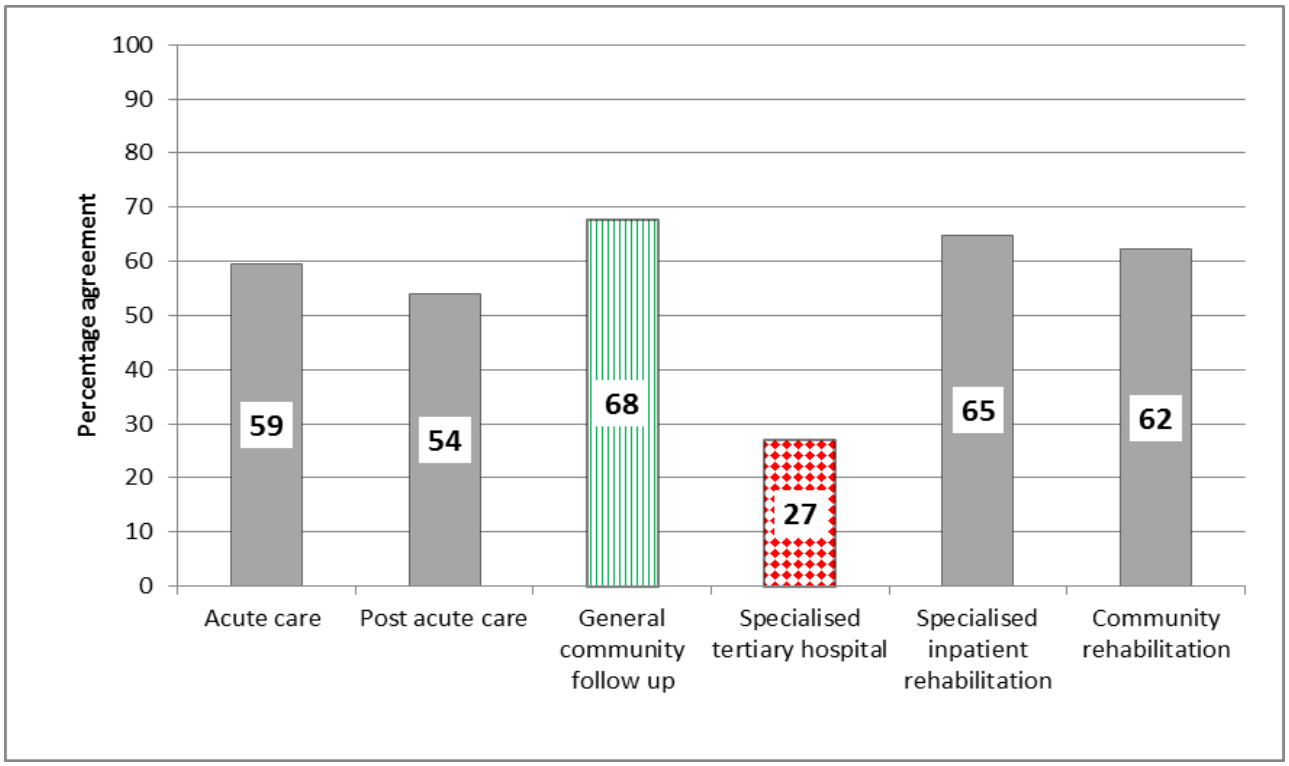
"*GPs can help patients if they have experience and time*" (P6), and "*I think the (*rehabilitation*) programme is a good idea and should be compulsory for all doctors at*

primary care settings. Persons with disabilities will feel more confident to approach/utilise primary health care settings concerning disability related matters knowing that the doctors understand their disability and needs" (P22) which supported the existence of the Rehabilitation programme under evaluation.

Indicator

- 2.13 Students are taught to manage persons with disabilities as they move through all levels of the continuum of health care i.e. In primary, secondary and tertiary health care
  In acute, post acute and chronic care,
  In the public and private sector,
  In specialised ambulatory (community) and residential (in-patient) rehabilitation settings.

Results



sample no (n)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.162	0.371	0.024	0.004	0.050	0.094

Figure 5.19 Percentage agreement: Learning settings

There was poor agreement with this indicator reflecting poor exposure of students to rehabilitation across the continuum of care. Only exposure to general follow up in the community was significant. The insignificant agreement with exposure to community and

specialised rehabilitaton services was highlighted by the comments against indicator 2.1 where there were five requests for students to spend time at a rehabilitation centre and at WCRC. There was significant disagreement with exposure in specialised tertiary hopitals where students still receive most of their medical training. This tied in with indicator 2.15 regarding integration of rehabilitation training across all specialities as rehabilittaion is not found as a speciality in this specialised tertiary hopital setting.

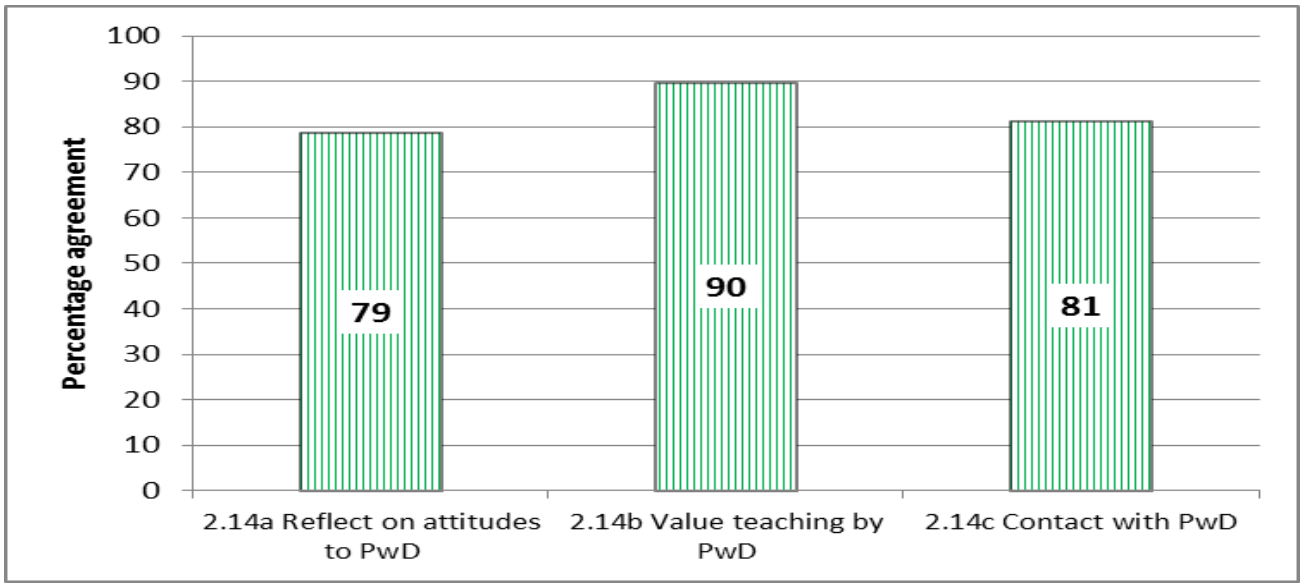
On data capture it was realised that the questions in the questionnaires were not aligned directly with the categories in the indicators and public or private health care options were not offered as options to the sample participants.

Indicator

- 2.14 Students are given an opportunity to reflect on their personal attitudes to persons with disabilities.

In addition the value that students place on teaching by patients was assessed. This tied in with indicator 6.4 that patient involvement in the delivery of the programme is acceptable to students. A further question related to but not part of the indicators was asked to establish if students have contact with persons with disabilities outside of the programme.

Results



sample no (n)	33 (MC, CM, L, S6)	29 (CM, L, S6)	48 (S3, S6)
p	0.001	0.000	0.000

Figure 5.20 Percentage agreement: Attitudes towards persons with disabilities

The results showed that there was significant agreement that students reflect on their attitudes to persons with disabilities, that they value teaching by disabled persons and that they have contact with them outside of the programme. This related to indicator 6.4 where there was significant agreement that patients are involved in the programme as case subjects and although not significant, that patients are involved in the programme as experts. RD10 suggested that students should reflect on their own emotional state and was added as an adjuvant to reflecting on attitudes to disabilities.

"*Rehabilitation is emotionally very taxing. We are faced with human tragedy all day. It is also very hard dealing with distraught, angry and difficult families.*" (RD10)

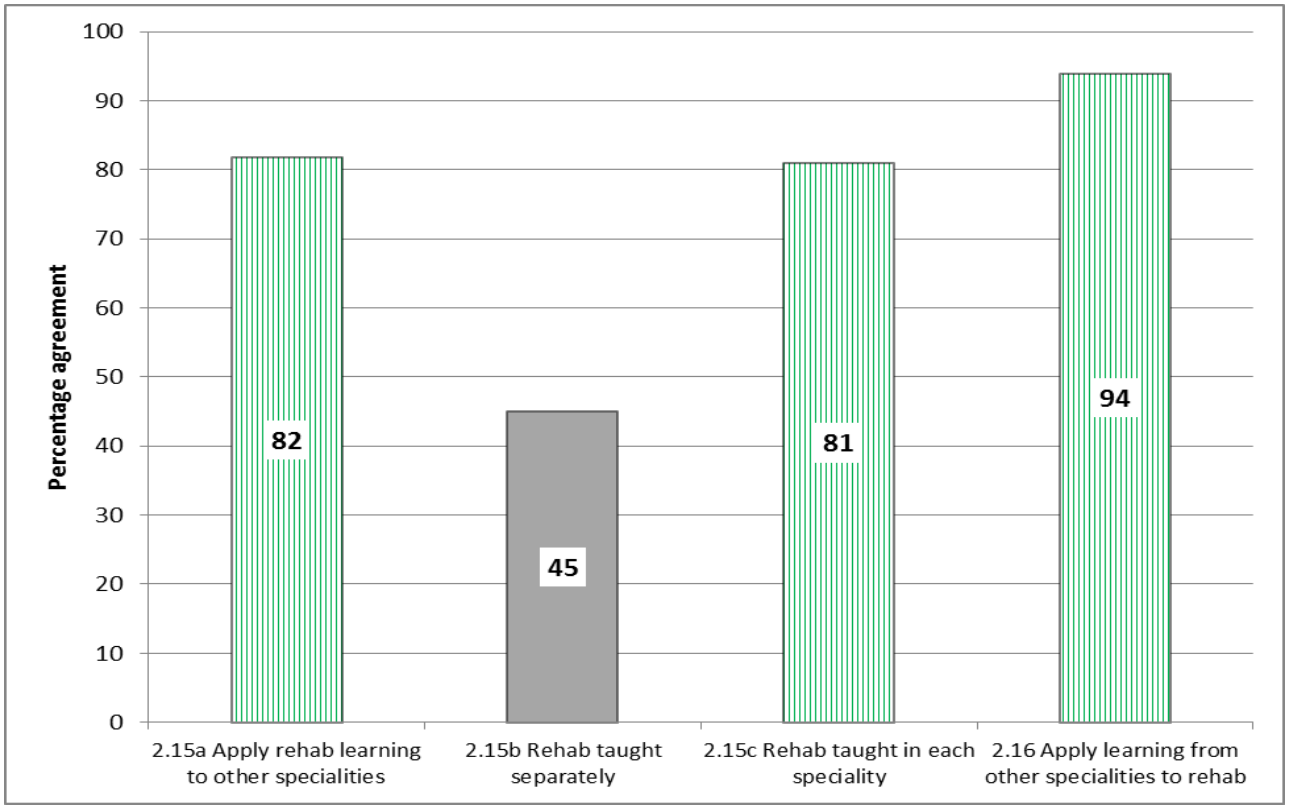
Indicator

- 2.15 Students are required to apply their knowledge of rehabilitation to other medical specialities across the curriculum (preferable).

Two additional questions were asked to ascertain preferences regarding teaching rehabilitation as a separate and/or integrated speciality.

- 2.16 Students are required to apply knowledge, skills and attitudes acquired in other medical specialities to management of persons with disabilities.

Results



sample no (n)	11 (S6)	40 (CM, L, S6, RD)	42 (CM, L, S6, RD)	33 (MC, CM, L, S6)
p	0.035	0.318	0.000	0.000

Figure 5.21 Percentage agreement: Integration of the Rehabilitation programme

There was significant application of rehabilitation learning across the curriculum and rehabilitation learning drawing on knowledge of other specialities. As evident in figure 5.22 below, 47.62% of respondents were of the opinion that rehabilitation should only be taught in other specialities however 33.33% felt that it should also be taught as a separate subject.

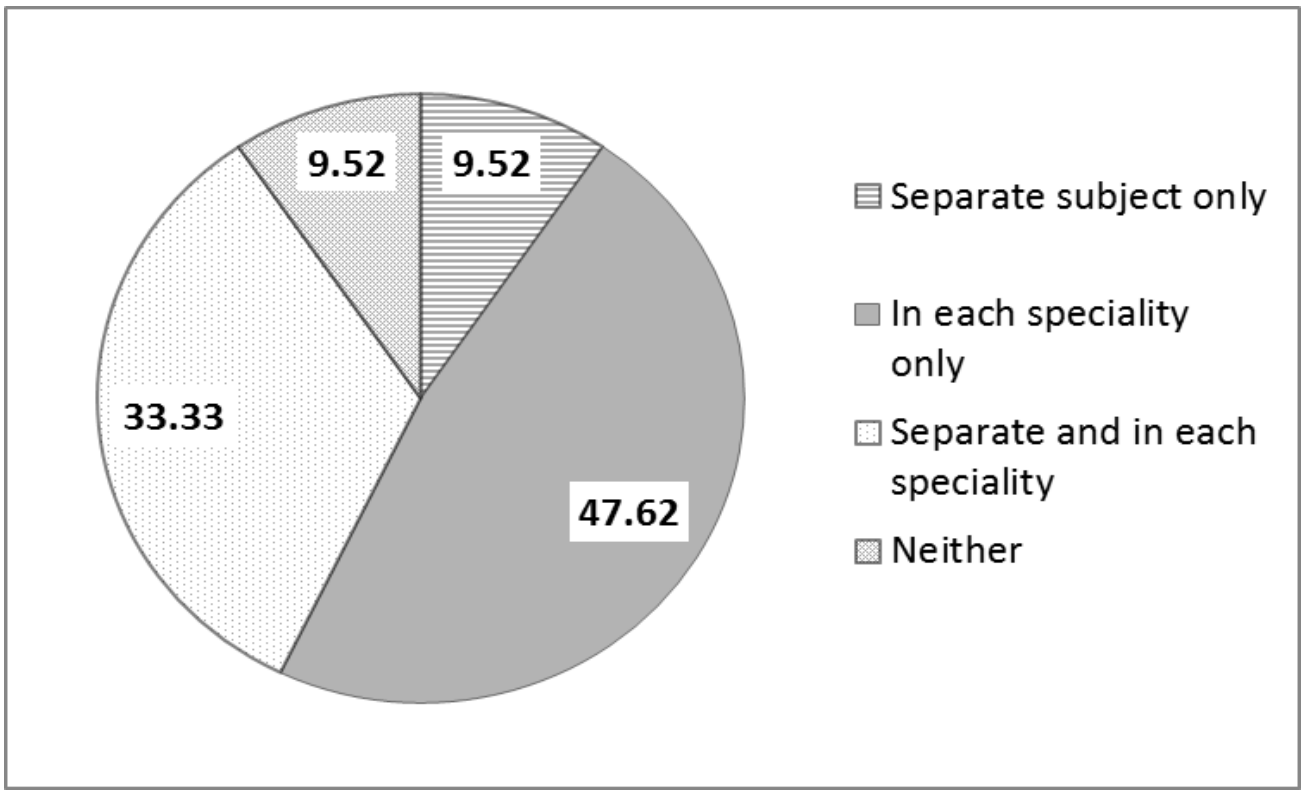


Figure 5.22 Teaching of rehabilitation as a speciality or within other specialities

Support for the 48% full integration into other specialities included: I would

"*like to learn about the rehabilitation when we deal with the various conditions in our block instead of an entire separate entity*" (S3-5).

L6 supported the 33 % combined approach writing that

"*the programme should be presented and assessed separately at some point during the curriculum and then integrated the rest of the time as is the case presently*".

S6-4 wrote "*as you know, medical students are expected to know a lot of each medical and surgical speciality. During each clinical rotation of the specialities, the specific department's staff wants the students to think their speciality is the most important in the course...which is not entirely wrong: It forces the student to understand the importance of that specific discipline. I feel that this emphasis is lacking from rehab. My suggestion for training in rehab for the MBChB program: Students should be exposed / taught the basic principles of rehab early in the program, during a dedicated theoretical and clinical block. Then, during their final student intern (S.I) rotation, each medical and surgical speciality*

through which they rotate, should focus part of their time on rehab. In this way, the students in their S.I rotations will get more detailed exposure to each speciality's management of specific rehab patients."

Although no respondent narratively supported the 10% agreement with rehabilitation only being taught as a separate subject, L6 also commented that

"*it is important that medical students appreciate Rehabilitation Medicine as a speciality*."

RD9 wrote "*I strongly feel that the only doctors who can really train students in rehabilitation are those who have some years of experience in treating patients with disabilities (rehabilitation doctors). My experience has been that most other specialities have only a vague concept of what rehabilitation entails and often set unrealistic goals for the patients to achieve*."

MC2 further warned that it is

"*important to be aware of what the students are learning in the non-rehab settings. Are they not learning bad habits because of high workloads*?"

Students commented that they would like more clinical exposure to a variety of disabilities and respondents referred to a wide variety of health conditions and bio psychosocial problems that need to be covered as will be presented later. Achievement of this wide programme content within the limited allocated time is possible if appropriate medical and rehabilitative management is covered in the respective medical speciality modules.

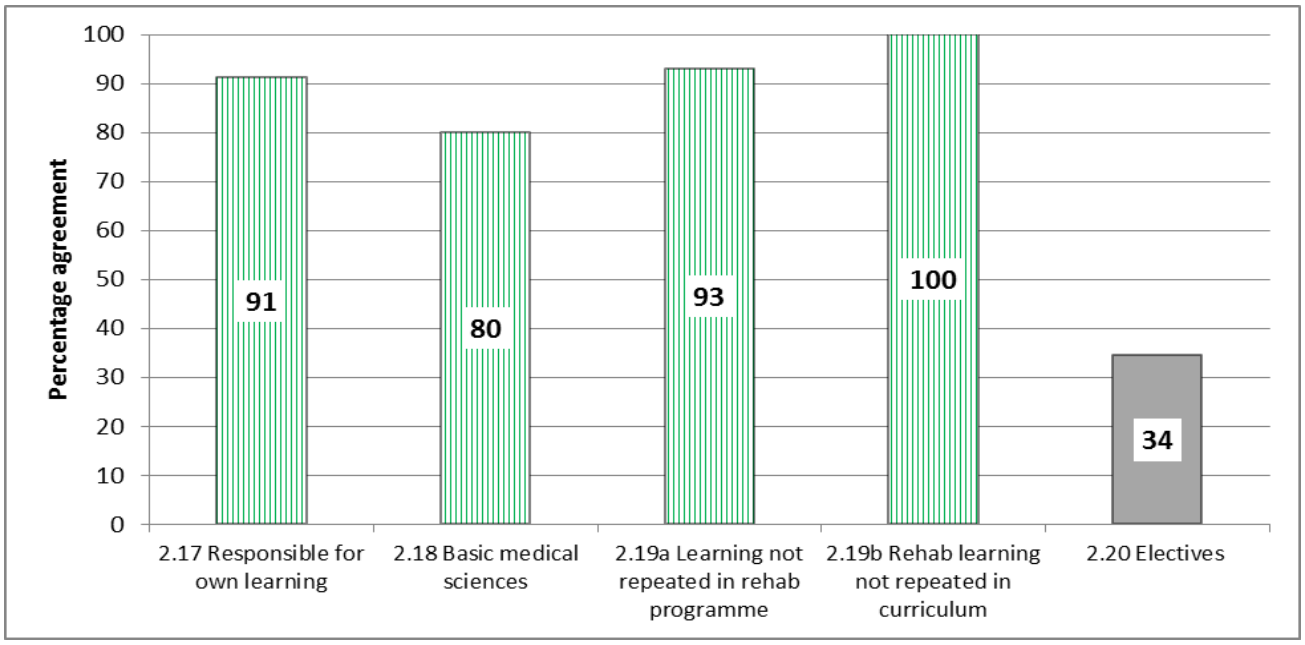
This approach carried the support of the head of the CCE who said:

"*If you feel there is an opportunity for rehab to get involved* (for example in an orthopaedics clinical rotation) *we expect you to follow that up*. *We would really welcome that. If rehab wants to integrate in other disciplines they are encouraged to make arrangements through the* (theory) *module chairs*."

Indicator

- 2.17 Students are made responsible for their own learning through evidence based practice, problem solving, critical thinking and clinical reasoning.
- 2.18 Students draw on learning in basic medical sciences in order to manage persons with disabilities.
- 2.19 There should not be unnecessary repetition of content within the Rehabilitation programme or the MBChB curriculum.
- 2.20 Electives in rehabilitation are offered (preferable).

Results



sample no (n)	34 (MC, CM, L, S6)	30 (MC, CM, L, S6)	29 (MC, CM, L, S6)	11 (S6)	29 (CM, S6, RD, T)
p	0.000	0.001	0.000	0.001	0.069

Figure 5.23 Percentage agreement: General education principles

There was significant agreement that four general educational principles as outlined in the literature are applied. This included that students should be responsible for their own learning, that rehabilitation teaching should draw on the basic medical sciences and that there should not be unnecessary repetition of Rehabilitation programme content in the programme or in the curriculum.

Indicator 2.19 did not condone repetition but in the words of the Head CCE: a

"*fine line exists between too much repetition and too little repetition. We don't discourage repetition when it is of value. So much depends on repetitive exposure to things as to how much you learn. What we don't want is unnecessary duplication of stuff*."

There was disagreement that electives in rehabilitation are offered. The availability of electives is dependent on clinical sites which as noted in 2.13 are not used significantly in the Rehabilitation programme. Indicator 8.3 however showed a significantly good relationship with clinical sites which could be explored.

5.2.2.2 Content of the Rehabilitation programme

Indicator

- 2.21 The definition of disability and rehabilitation is taught in the context of the ICF.

Results

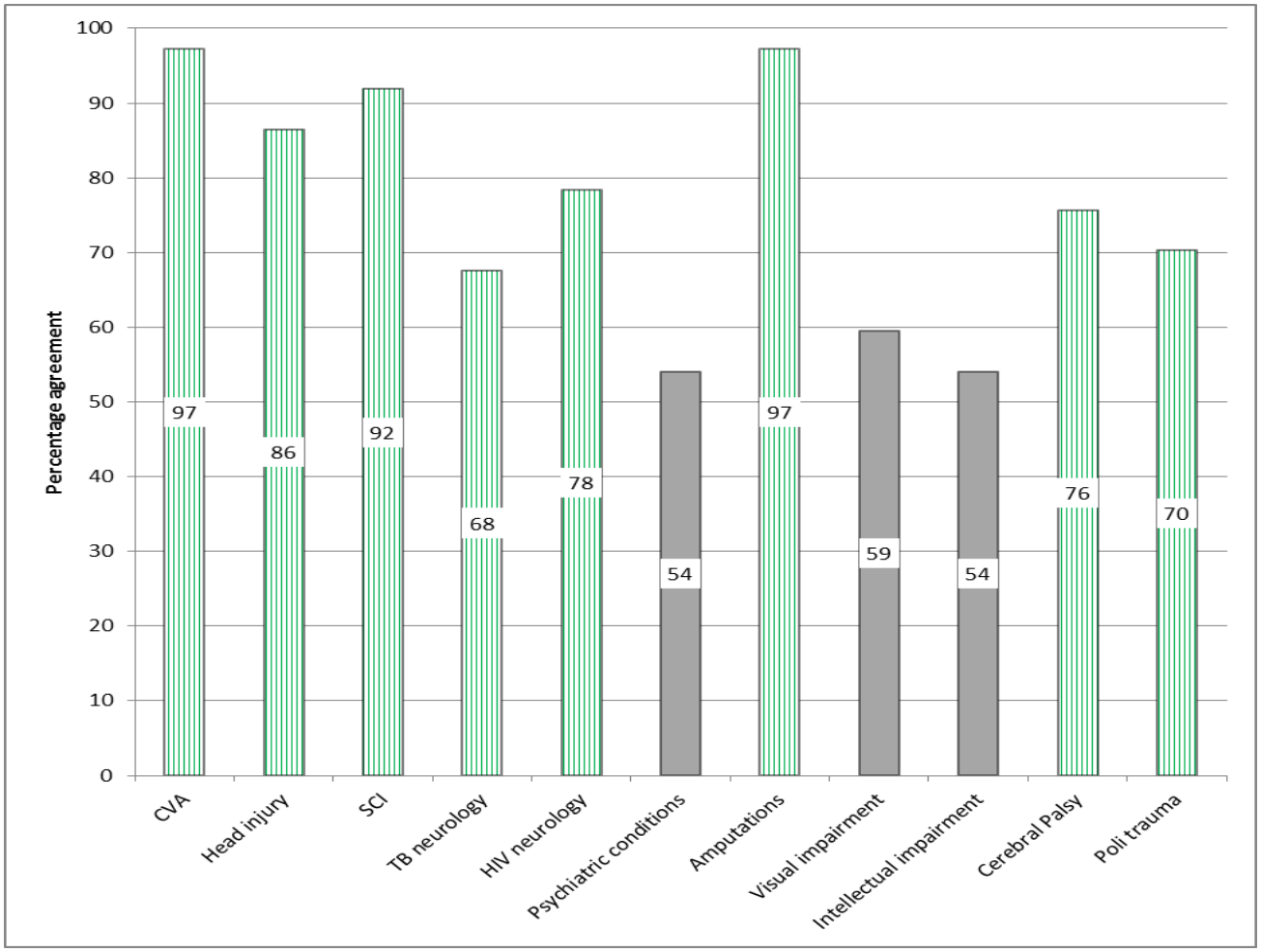
There was an insignificant agreement of 64% (p=0.115) that the framework of the ICF is used to teach the definition of disability and rehabilitation (CM, L, S6).

Indicator

- 2.22 Students are made aware of the health conditions frequently causing disability in their local health context.

Apart from the list provided, an option for other was given to establish if the list was complete for health conditions currently taught. Participants were also asked to volunteer additional health conditions that should be taught. This question was amended to establish what health conditions causing disability are seen in the community and what rehabilitation professionals felt students should learn. Third year students were asked to volunteer what health conditions they thought caused disability in SA.

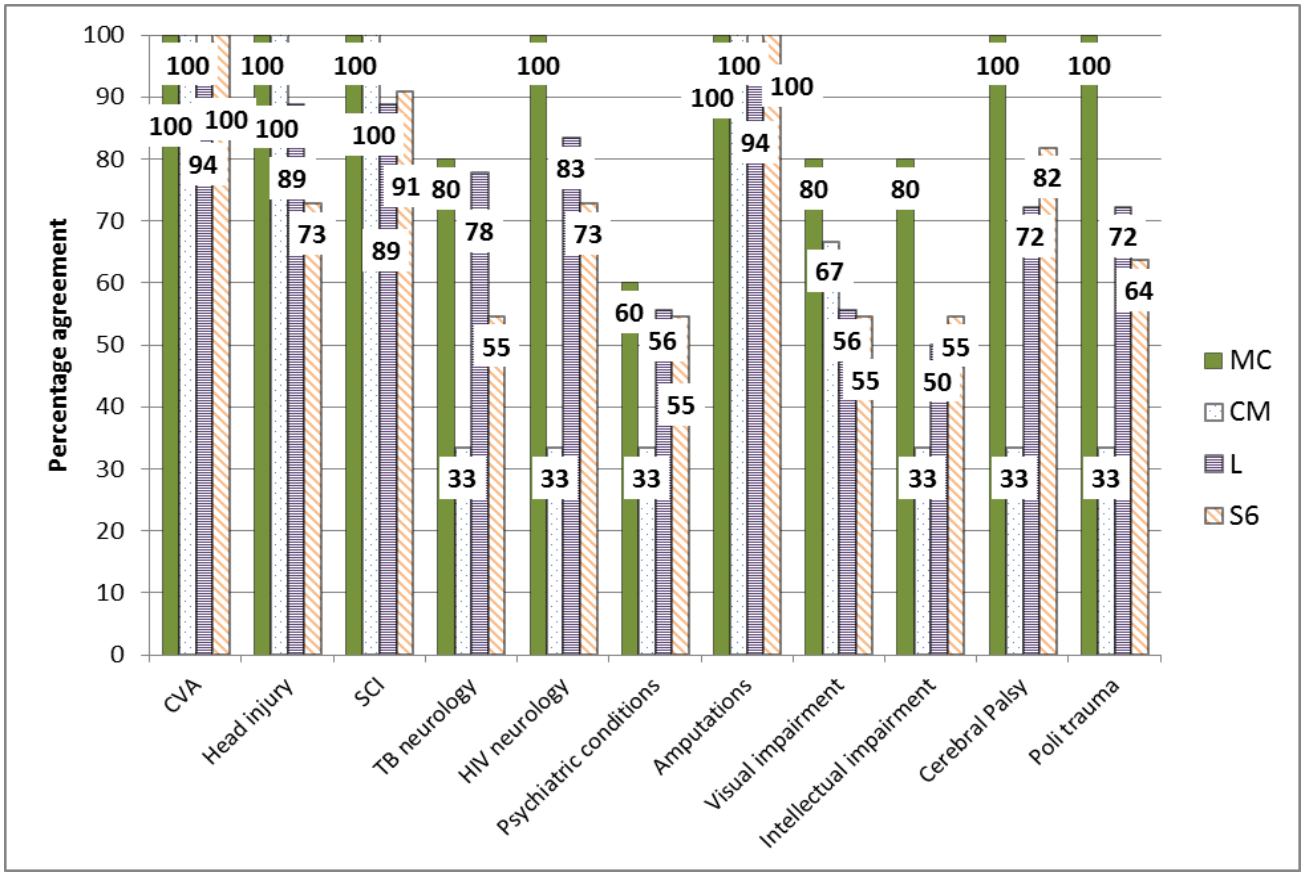
Results



Health condition	CVA	Head injury	SCI	TB neurology	HIV neurology	Psychiatric conditions	Amputations	Visual impairment	Intellectual impairment	Cerebral Palsy	Poli trauma
sample no (n)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)	37 MC, CM, L, S6)
p	0.000	0.000	0.000	0.024	0.000	0.371	0.000	0.162	0.371	0.002	0.011

Figure 5.24: Percentage agreement: Health conditions taught

There was significant agreement that eight of the eleven health conditions offered in the questionnaire where taught. There was no significant agreement that psychiatric, visual and intellectual impairment were taught. In addition two people said that hearing impairment was covered and CM2 wrote that "*the focus is more on functionality not type of impairment*". The chi-squared test showed no significant relationship between sample groups and responses to any of the categories given. The data was however further analysed per sample group as this was required for other components of this indicator and the researcher was curious to examine the student responses separately.



Health condition	CVA	Head injury	SCI	TB neurology	HIV neurology	Psychiatric conditions	Amputations	Visual impairment	Intellectual impairment	Cerebral Palsy	Poli trauma
MC%	100	100	100	80	100	60	100	80	80	100	100
p nMC =5	0.037	0.037	0.037	0.186	0.037	0.500	0.037	0.186	0.186	0.037	0.037
CM%	100	100	100	33	33	33	100	67	33	33	33
p nCM =3	0.124	0.124	0.124	0.500	0.500	0.500	0.124	0.500	0.500	0.500	0.500
L%	94	89	89	78	83	56	94	56	50	72	72
p nL=18	0.000	0.001	0.001	0.017	0.005	0.407	0.000	0.407	0.593	0.049	0.049
S6%	100	73	91	55	73	55	100	55	55	82	64
p nS6=11	0.001	0.114	0.008	0.500	0.114	0.500	0.001	0.500	0.500	0.035	0.273

Figure 5.25: Percentage agreement for each sample group: Health conditions taught

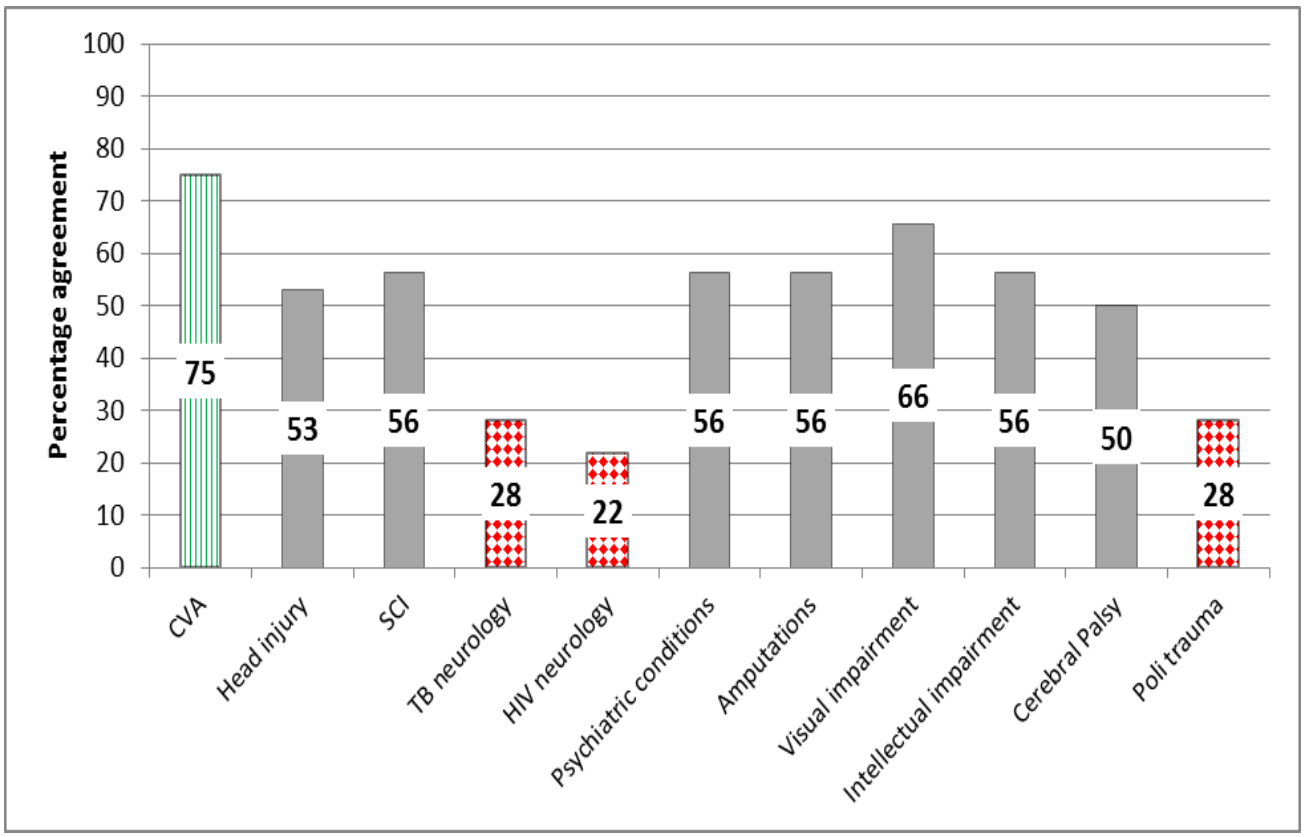
In the table of figure 5.25 (and following tables of this nature)

 Indicates significance

 Indicates disagreement

This further analysis revealed that the CRS managers were of the opinion that TB and HIV neurology, psychiatric and intellectual impairment, cerebral palsy and poly-trauma were not taught. The lecturers responded significantly positively that eight of the eleven health conditions were taught with the students only responding significantly to four. The students were however of the opinion that all conditions had been taught, although not all significant. When reviewing the responses from the third year students, the health conditions that they volunteered without having a list to prompt them, were aligned with the above i.e. CVA (13 students), SCI (11 students), Amputation (7 students), Visual (7 students), intellectual (6 students) and poly-trauma (7 students).

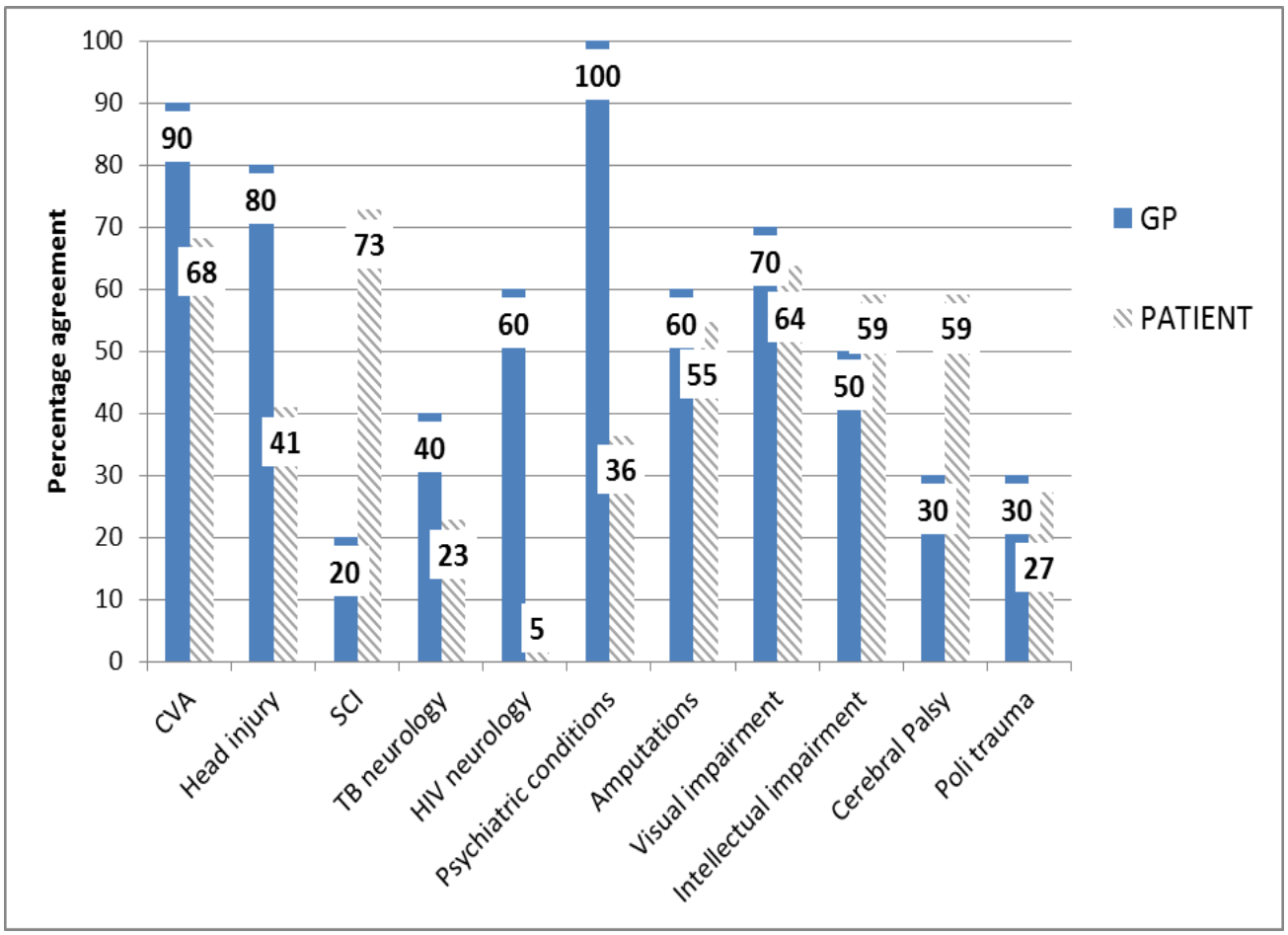
GPs and patients were asked what health conditions they saw in the community. The results were as follows.



Health condition	CVA	Head injury	SCI	TB neurology	HIV neurology	Psychiatric conditions	Amputations	Visual impairment	Intellectual impairment	Cerebral Palsy	Poli trauma
sample no (n)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)
p	0.004	0.430	0.298	0.011	0.001	0.298	0.298	0.056	0.298	0.570	0.011

Figure 5.26 Percentage agreement: Health conditions seen in the community

There was significant support for the presence of CVAs in the community and there were significantly few responses for TB and HIV neurology and poly-trauma. There was a significant relationship between the groups and responses for psychiatric conditions (p value for chi-squared test= 0.036), so the sample groups were further analysed as follows.

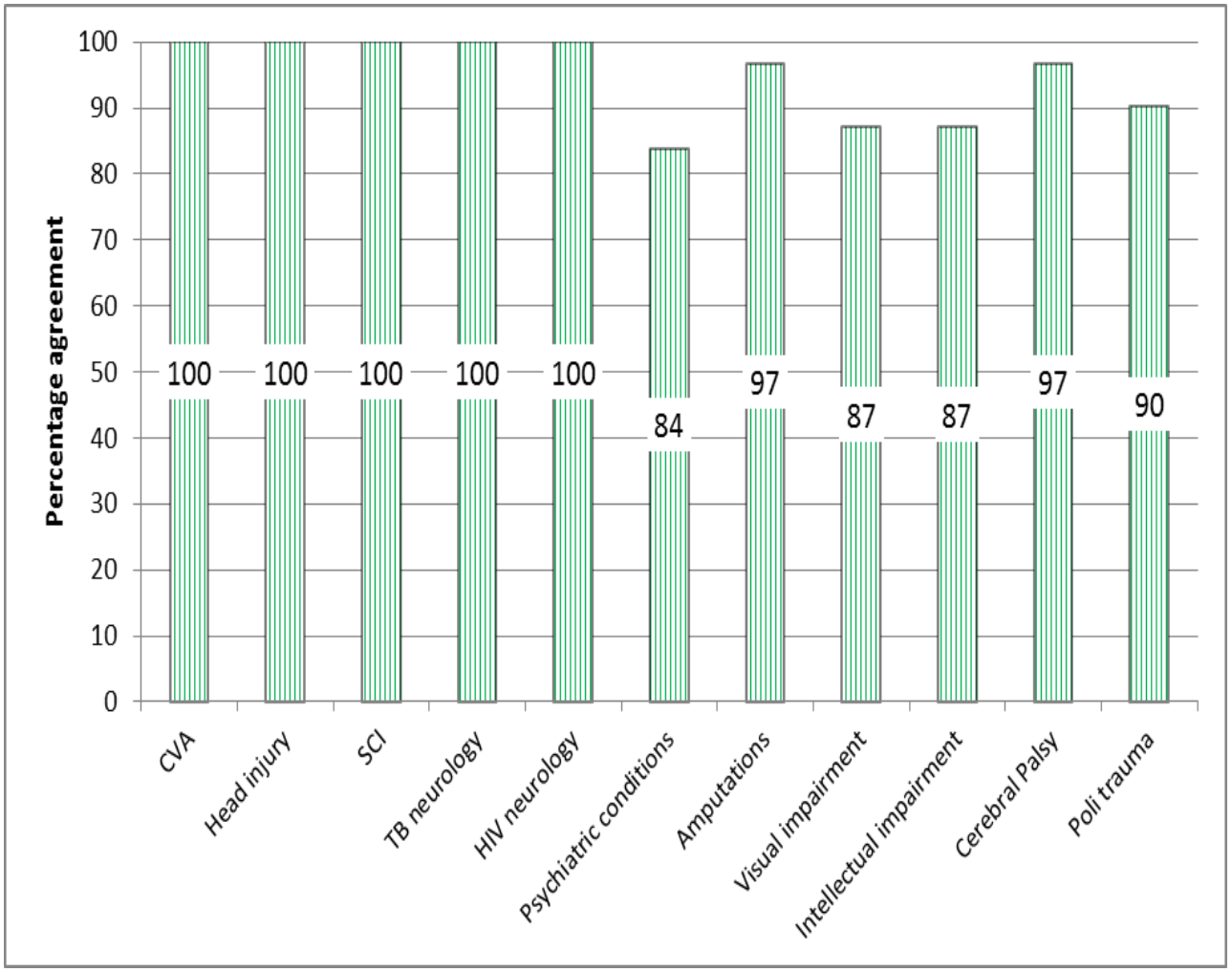


Health condition	CVA	Head injury	SCI	TB neurology	HIV neurology	Psychiatric conditions	Amputations	Visual impairment	Intellectual impairment	Cerebral Palsy	Poly trauma
GP%	90	80	20	40	60	100	60	70	50	30	30
p nGP=10	0.013	0.057	0.057	0.376	0.376	0.002	0.376	0.171	0.624	0.171	0.171
P%	68	41	73	23	5	36	55	64	59	59	27
p nP=22	0.068	0.261	0.028	0.010	0.000	0.143	0.416	0.143	0.261	1.261	0.028

Figure 5.27 Percentage agreement for each sample group: Health conditions seen in the community

Apart from the differences of opinion regarding the presence of psychiatric conditions in the community, the patients also reported less head injuries and HIV neurology. GPs did not report as much SCI and Cerebral Palsy in the community as did patients.

Rehabilitation experts (doctors and members of community based interdisciplinary teams) were asked what health conditions should be taught. There was significant agreement that all the suggested heath conditions should be taught as shown in the following figure.



Health condition	CVA	Head injury	SCI	TB neuro logy	HIV neuro logy	Psychia tric condi tions	Amputa tions	Visual impair ment	Intellec tual impair ment	Cerebral Palsy	Poly trauma
sample no (n)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)
p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Figure 5.28 Percentage agreement: Heath conditions that should be taught

Although there was significant agreement that eight of the eleven offered health conditions were taught and should be taught according to rehabilitation professionals, the health conditions reported by the GPs and patients in this study differed. The list for this study was generated from the literature, but this was mainly provided by specialists in rehabilitation and related medical specialities and it would stand to reason that it was thus supported by the rehabilitation professionals in this study. This is of note as the community forms the base of much of the teaching platform for rehabilitation and reflects what students will have to deal with when placed in the community once qualified and thus the

relevance of this list for the programme. There was however no criticism of the list by lecturers who have a mean of 11 years community experience (range 2-40years) and the sixth year students.

It was suggested that the following health conditions should also be covered:

- Degenerative neurological conditions (Parkinsons, Altzheimers, Dementia, Motor Neuron Disease) (23 respondents)
- Hearing impairment (14 respondents)
- HIV and TB (16 respondents)
- Cancer (12 respondents)
- Musculoskeletal and Soft tissue conditions (Rheumatoid arthritis, Ankylosing spondylitis, Osteoporosis, Old fractures, Hip and knee replacement, Back problems, Osteogenesis imperfecta, Muscular Dystrophy, Systemic Lupus Erythematosis) (11 respondents)
- Chronic diseases (diabetes, hypertension, obesity, liver cirrhosis and failure, chronic fatigue) (10 respondents); Chronic Obstructive Pulmonary Disease (COPD), Chronic Asthma (10 respondents); Cardiovascular conditions (Myocardial infarction, heart failure) (11 respondents)
- Other conditions mentioned less than ten times each: Congenital or birth deformities (Foetal alcohol syndrome, Downs, autism), other neurological conditions (Multiple sclerosis, Guillaine Barre, Polyneuropathy, Transverse myelitis, Neurosyphylis, Polio, Epilepsy, Huntington's Chorea, Near drowning, Intensive Care Unit (ICU) myelopathy), Old age, Sport and Trauma (hand injuries), Burns, general debility (post ICU or surgery). Specific psychiatric conditions mentioned were personality disorder, anxiety, depression, substance abuse

This lengthy list was complemented by responses such as

"*a list of conditions should not be the emphasis since we have seen half rare syndromes and not all can be addressed*" (L1) and

"*I don't think the conditions should be covered in this module (this should be dealt with in the relevant medical speciality modules), but the holistic management of persons …with any of these conditions and consequences…if such holistic management has not been implemented*" (T18).

The role of the programme in teaching health conditions and the comprehensive management thereof will be discussed in the following chapter. The bio psychosocial problems that need to be addressed in order to achieve holistic management are covered in the following indicator.

Indicator

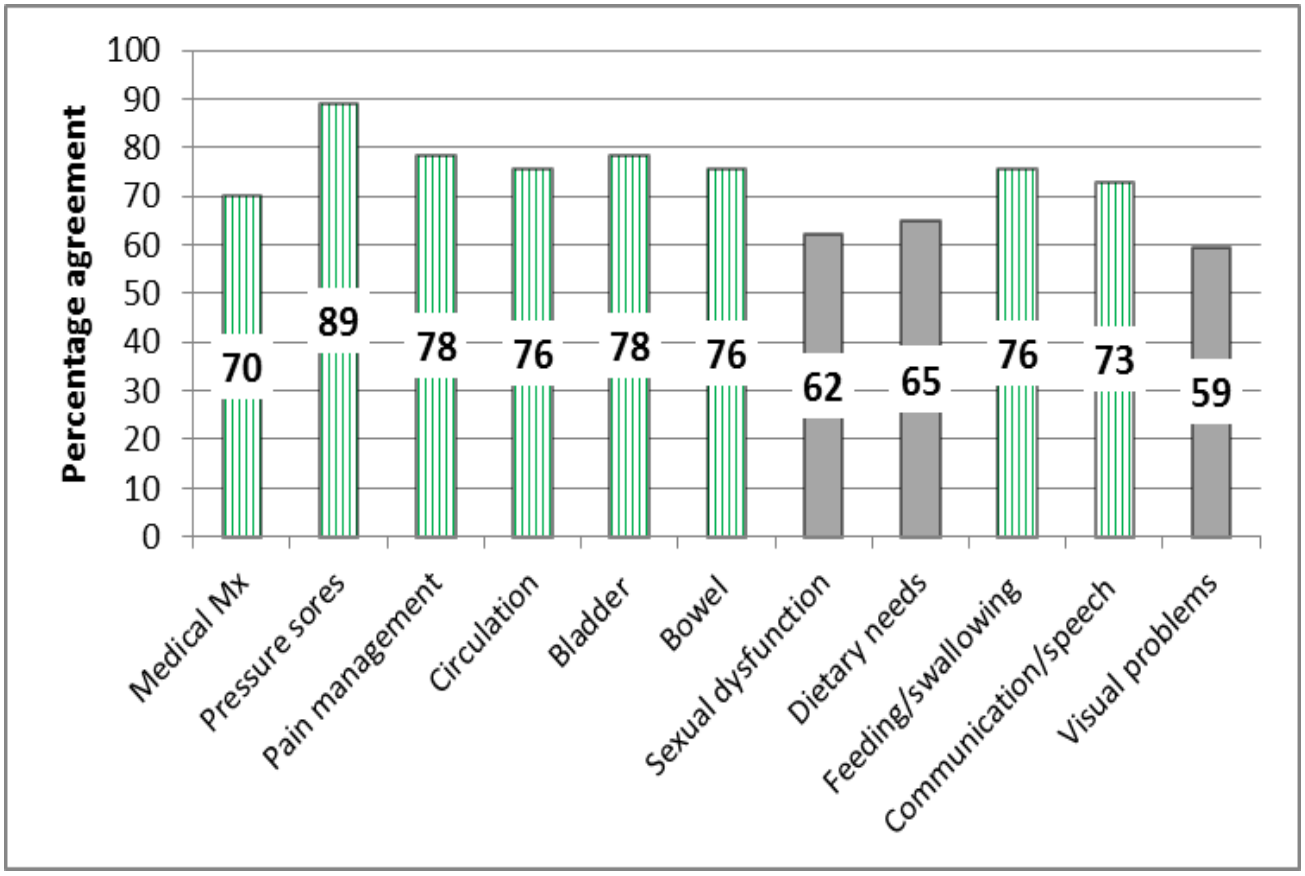
- 2.23 Students are made aware of the bio, psycho and social needs of persons with disabilities.

As for 2.22 an option for other was given to establish if the list was complete for problems currently taught. Participants were also asked to volunteer additional problems that should be taught. This question was amended to establish what problems causing disability are seen in the community and what rehabilitation professionals felt students should learn. Third year students were asked to volunteer what problems they would like to be taught in an undergraduate disability and Rehabilitation programme.

- 2.24 Students are taught how to manage the bio, psycho and/or social needs of persons with disabilities through medical, transdisciplinary management, inter or multidisciplinary referral and use of community resources. Respondents were further asked to volunteer what students need to know regarding each of these management approaches to further define this indicator.
- 2.25 Students are taught a generic approach to disability management so that they can manage any health condition causing disability.

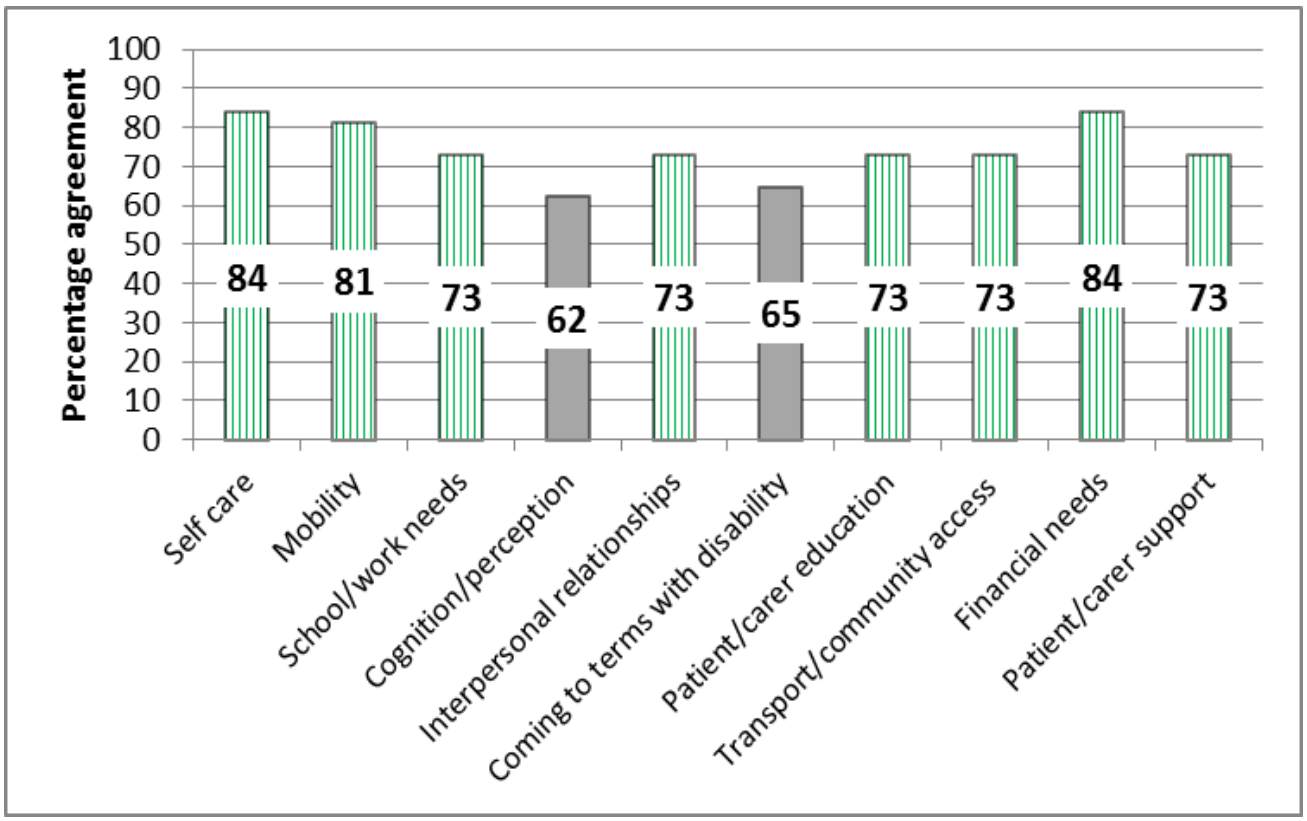
Due to the number of bio psychosocial problems, the results are shown over two histograms for each indicator.

Results



Problem	Medical Mx	Pressure sores	Pain management	Circulation	Bladder	Bowel	Sexual dysfunction	Dietary needs	Feeding/ Swallowing	Communication/ speech	Visual problems
Sample no (n)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.011	0.000	0.001	0.002	0.001	0.002	0.094	0.050	0.002	0.004	0.162

Figure 5.29i Percentage agreement: Bio psychosocial problems taught (1)

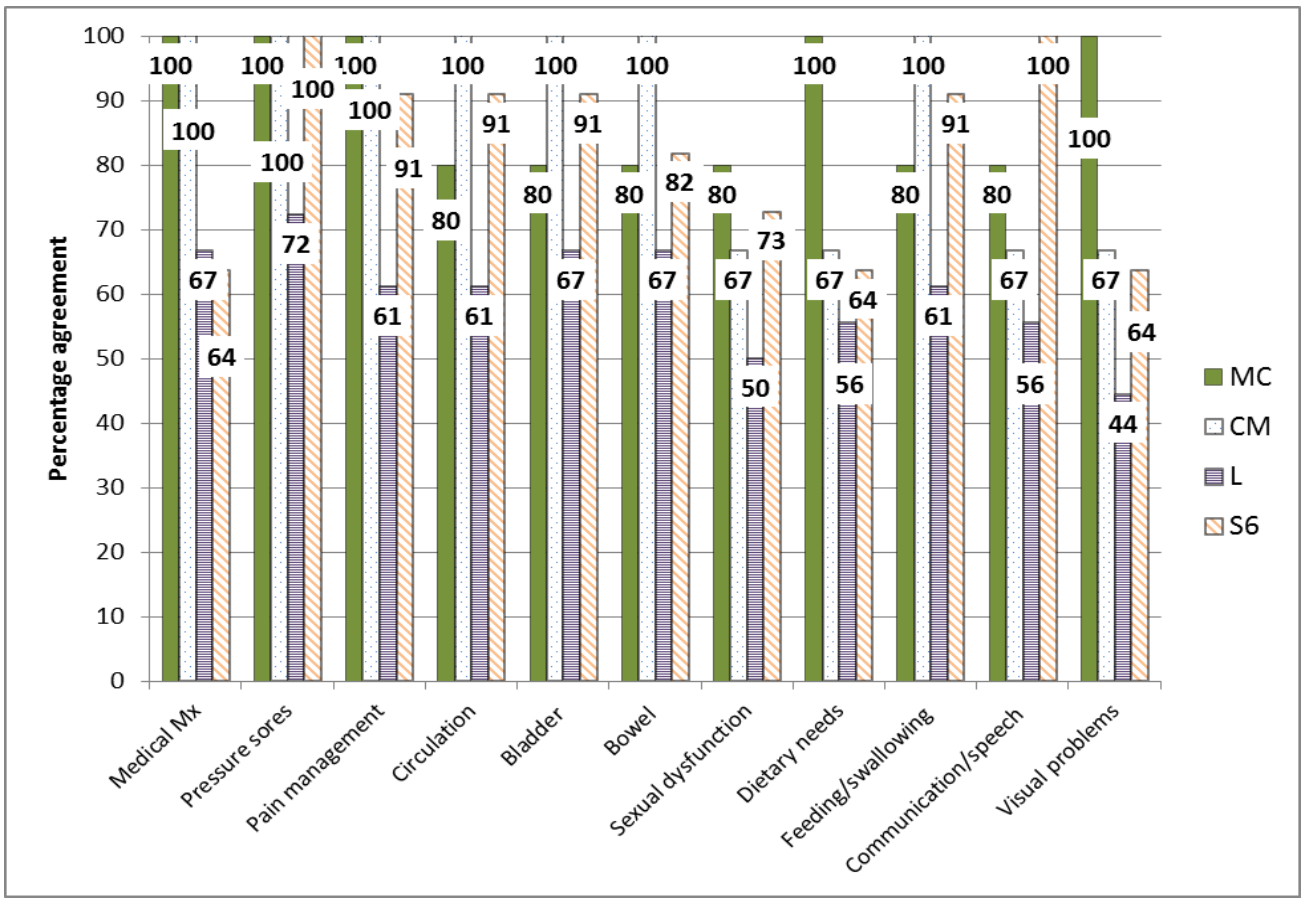


Problem	Self care	Mobility	School/ work needs	Cognition/ perception	Inter personal relation ships	Coming to terms with disability	Patient/ carer education	Transport/ community access	Financial needs	Patient/ carer support
Sample no (n)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.000	0.000	0.004	0.094	0.004	0.050	0.004	0.004	0.000	0.004

Figure 5.29ii Percentage agreement: Bio psychosocial problems taught (2)

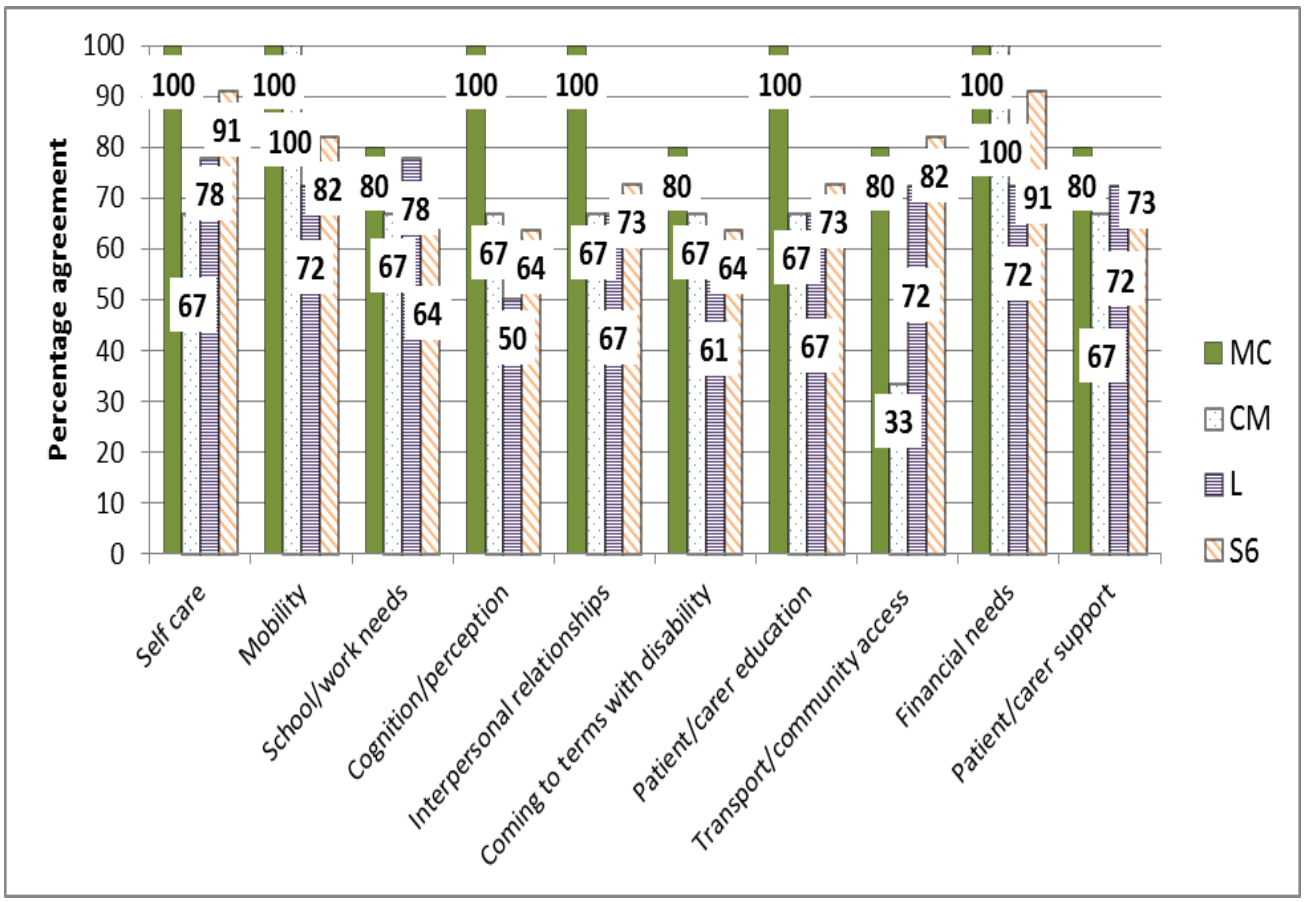
There was significant agreement with 15 of the 21 options given. The opinion was that sexual dysfunction, dietary needs, cognition and perception and coming to terms with a disability, is taught but there was not significant agreement. Additional comment from two lecturers was that the topics taught depend on the diagnosis of the patient seen during facilitation and on the resources available at the site where the student is placed. As mentioned in 2.1 this may result in not all students getting the same exposure. No specific additional problems were listed that are taught in the programme.

The chi-squared test did not show any significant relationship between the sample groups and responses. The response per sample group is however also shown below as for indicator 2.22.



Problem	Medical Mx	Pressure sores	Pain management	Circulation	Bladder	Bowel	Sexual dysfunction	Dietary needs	Feeding/ Swallowing	Communication/ speech	Visual problems
MC %	100	100	100	80	80	80	80	100	80	80	100
p nMC =5	0.037	0.037	0.037	0.186	0.186	0.186	0.186	0.037	0.186	0.186	0.037
CM %	100	100	100	100	100	100	67	67	100	67	67
p nCM =3	0.124	0.124	0.124	0.124	0.124	0.124	0.500	0.500	0.124	0.500	0.500
L%	67	72	61	61	67	67	50	56	61	56	44
p nL=1 8	0.119	0.050	0.240	0.240	0.120	0.120	0.593	0.407	0.240	0.407	0.407
S6%	64	100	91	91	91	82	73	64	91	100	64
p nS6 =11	0.273	0.001	0.008	0.008	0.008	0.035	0.114	0.273	0.008	0.001	0.273

Figure 5.30i Percentage agreement for each sample group: Bio psychosocial problems taught (1)



Problem	Self care	Mobility	School/ work needs	Cognition/ perception	Inter personal relation ships	Coming to terms with disability	Patient/ carer education	Transport/ community access	Financial needs	Patient/ carer support
MC %	100	100	80	100	100	80	100	80	100	80
p nMC =5	0.037	0.037	0.186	0.037	0.037	0.186	0.037	0.186	0.037	0.186
CM %	67	100	67	67	67	67	67	33	100	67
p nCM =3	0.5	0.124	0.500	0.500	0.500	0.500	0.500	0.500	0.124	0.500
L%	78	72	78	50	67	61	67	72	72	72
p nL=1 8	0.017	0.050	0.017	0.593	0.120	0.240	0.120	0.049	0.049	0.049
S6%	91	82	64	64	73	64	73	82	91	73
p nS6 =11	0.008	0.035	0.273	0.273	0.114	0.273	0.114	0.035	0.008	0.114

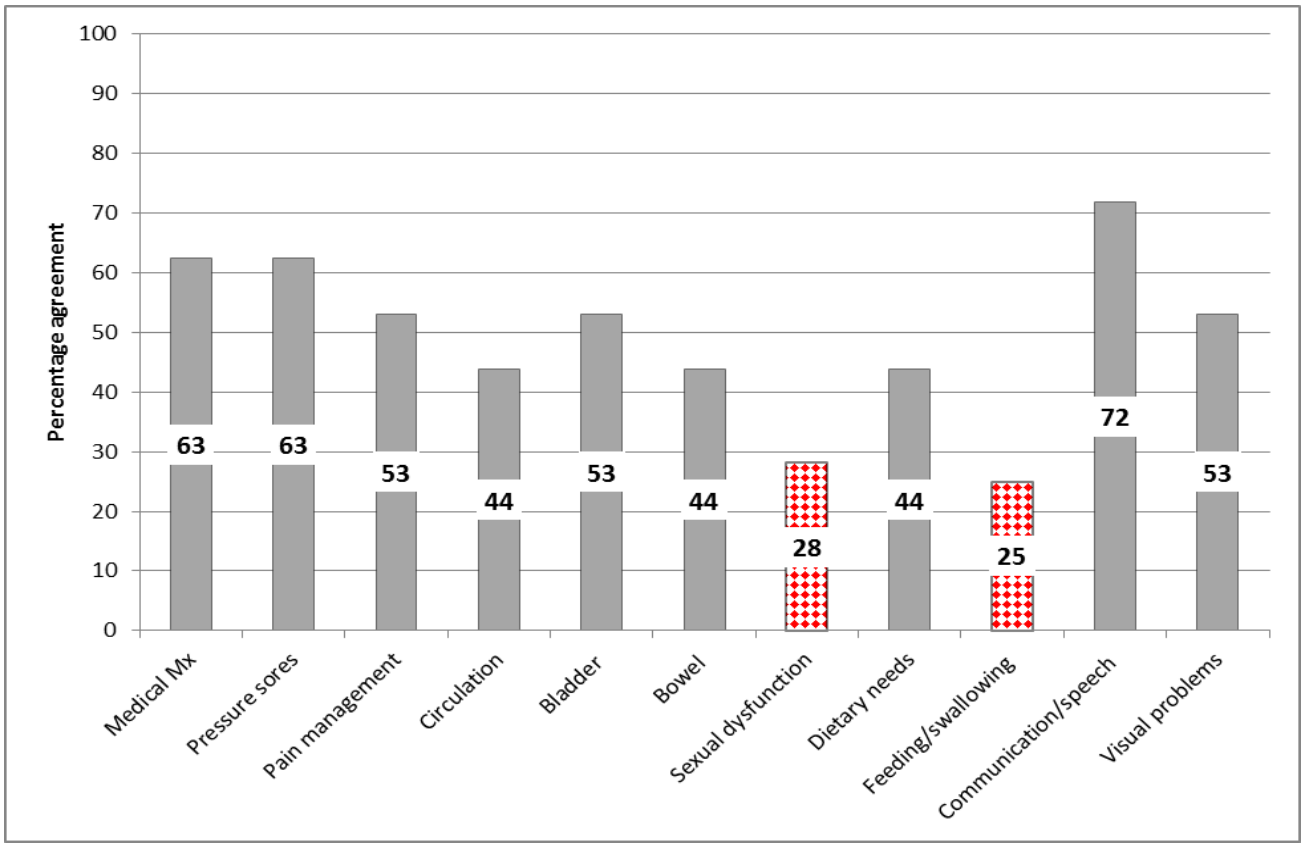
Figure 5.30ii Percentage agreement for each sample group: Bio psychosocial problems taught (2)

The histograms for the sample groups follow that of the aggregate sample, with the lecturers generally scoring the problems covered lower than the other sample groups. The

lectures did not support that visual problems (44%) are covered and CRS managers did not support that transport and community access (33%) is addressed.

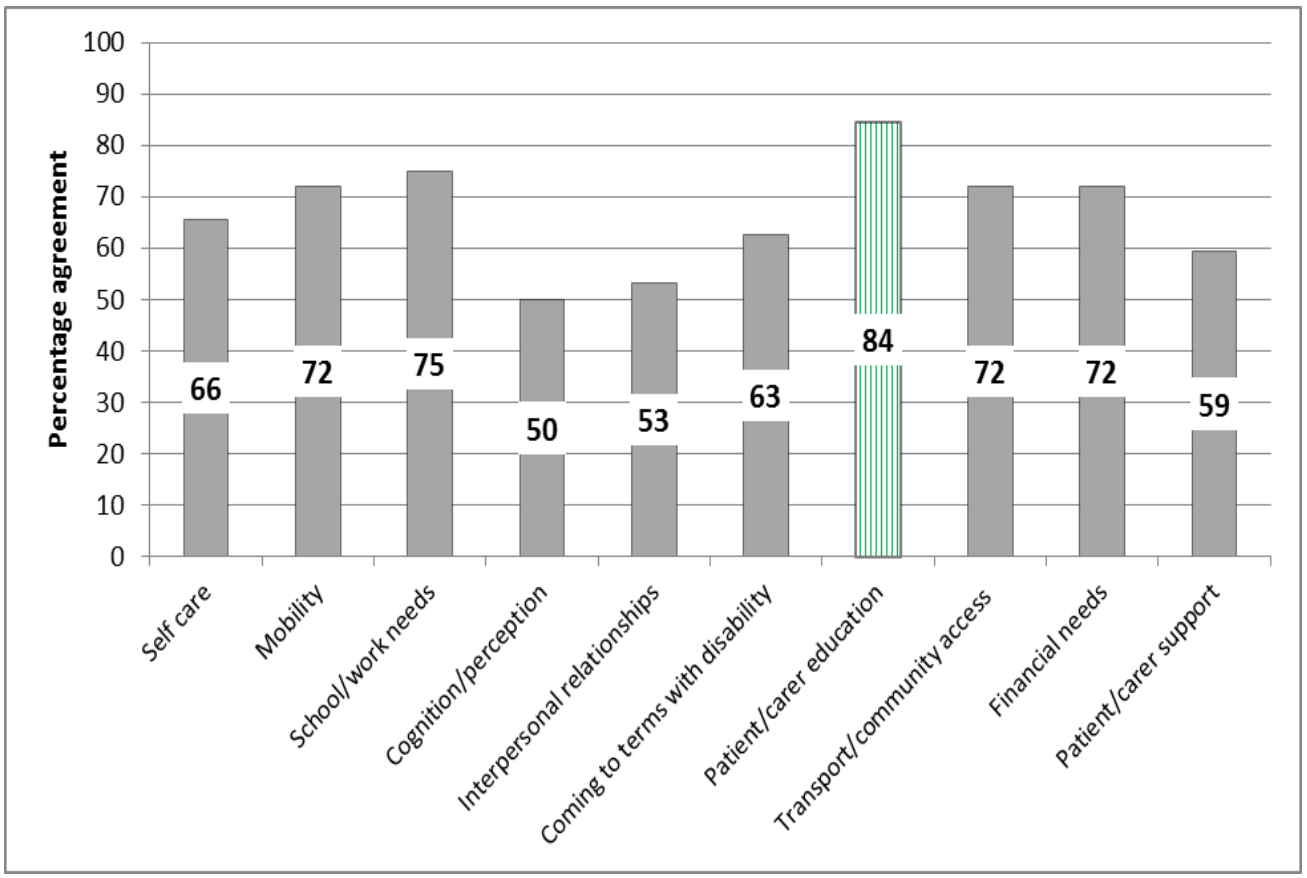
The Module Chairs and the sixth year students responded significantly that 11 of the 21 problems are covered although the categories covered were different. The third year students were not given the list of problems and volunteered an expectation that medical management (12 students), assisting the patient in coming to terms with their disability (17 students) and patient and carer support (9 students) should be covered in the programme.

The opinion of GPs and patients was as follows:



Problem	Medical Mx	Pressure sores	Pain management	Circulation	Bladder	Bowel	Sexual dysfunction	Dietary needs	Feeding/ Swallowing	Communication/ speech	Visual problems
Sample no (n)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)
p	0.371	0.371	0.371	0.094	0.371	0.094	0.002	0.094	0.001	0.094	0.371

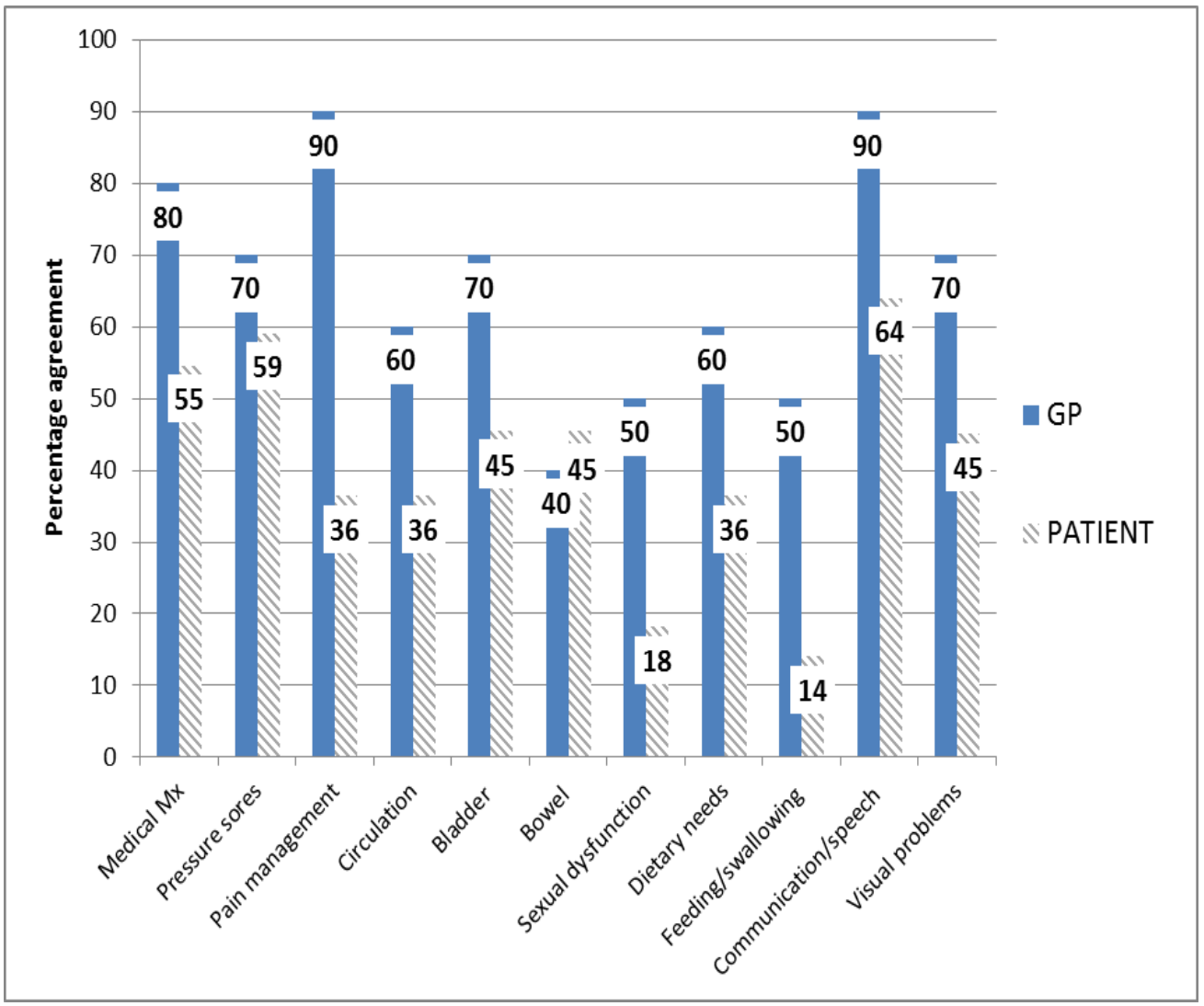
Figure 5.31i Percentage agreement: Bio psychosocial problems seen in the community (1)



Problem	Self care	Mobility	School/ work needs	Cognition/ perception	Inter personal relation ships	Coming to terms with disability	Patient/ carer education	Transport/ community access	Financial needs	Patient/ carer support
Sample no (n)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)	32 (GP, P)
p	0.255	0.094	0.050	0.255	0.371	0.371	0.004	0.094	0.094	0.500

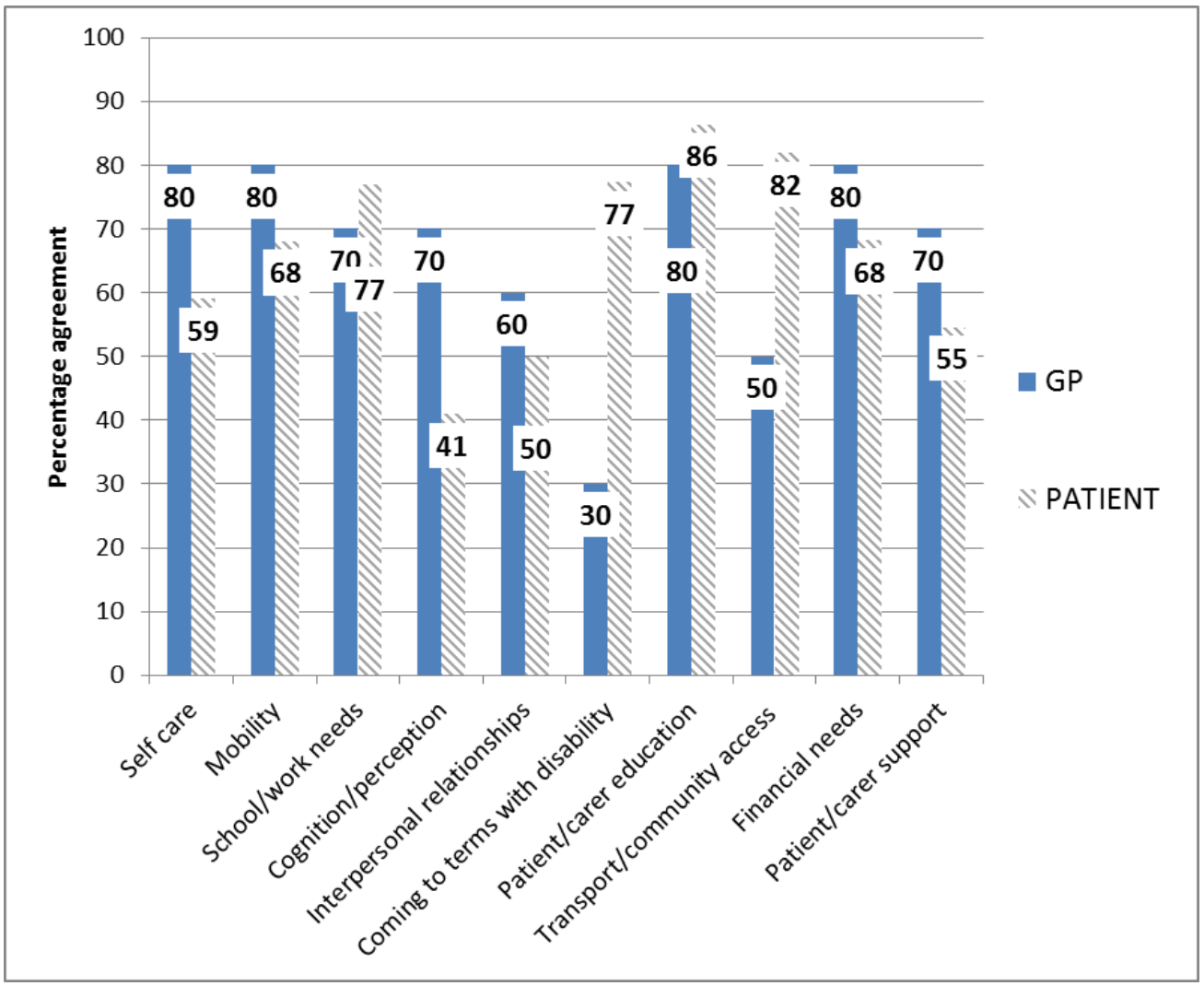
Figure 5.31ii Percentage agreement: Bio psychosocial problems seen in the community (2)

There was only significant agreement with one problem offered (patient and carer education) and insignificant agreement that 14 other problems are seen in the community. There was significant non agreement that sexual problems and feeding and swallowing problems are seen in the community. Furthermore circulation, bowel and dietary needs were not seen by the majority as problems in the community. The chi squared test did not show a relationship between the responses and sample groups but the sample groups were analysed separately as as in 2.22 due to patient and GP differences of opinion noted in the literature and is shown in the following figures.



Problem	Medical Mx	Pressure sores	Pain management	Circulation	Bladder	Bowel	Sexual dysfunction	Dietary needs	Feeding/ Swallowing	Communication/ speech	Visual problems
GP %	80	70	90	60	70	40	50	60	50	90	70
p nGP =10	0.057	0.171	0.013	0.374	0.171	0.374	0.624	0.376	0.624	0.013	0.171
P%	55	59	36	36	45	45	18	36	14	64	45
p nP= 22	0.416	0.261	0.143	0.143	0.416	0.416	0.003	0.143	0.001	0.143	0.416

Figure 5.32i Percentage agreement for each sample group: Bio psychosocial problems seen in the community (1)

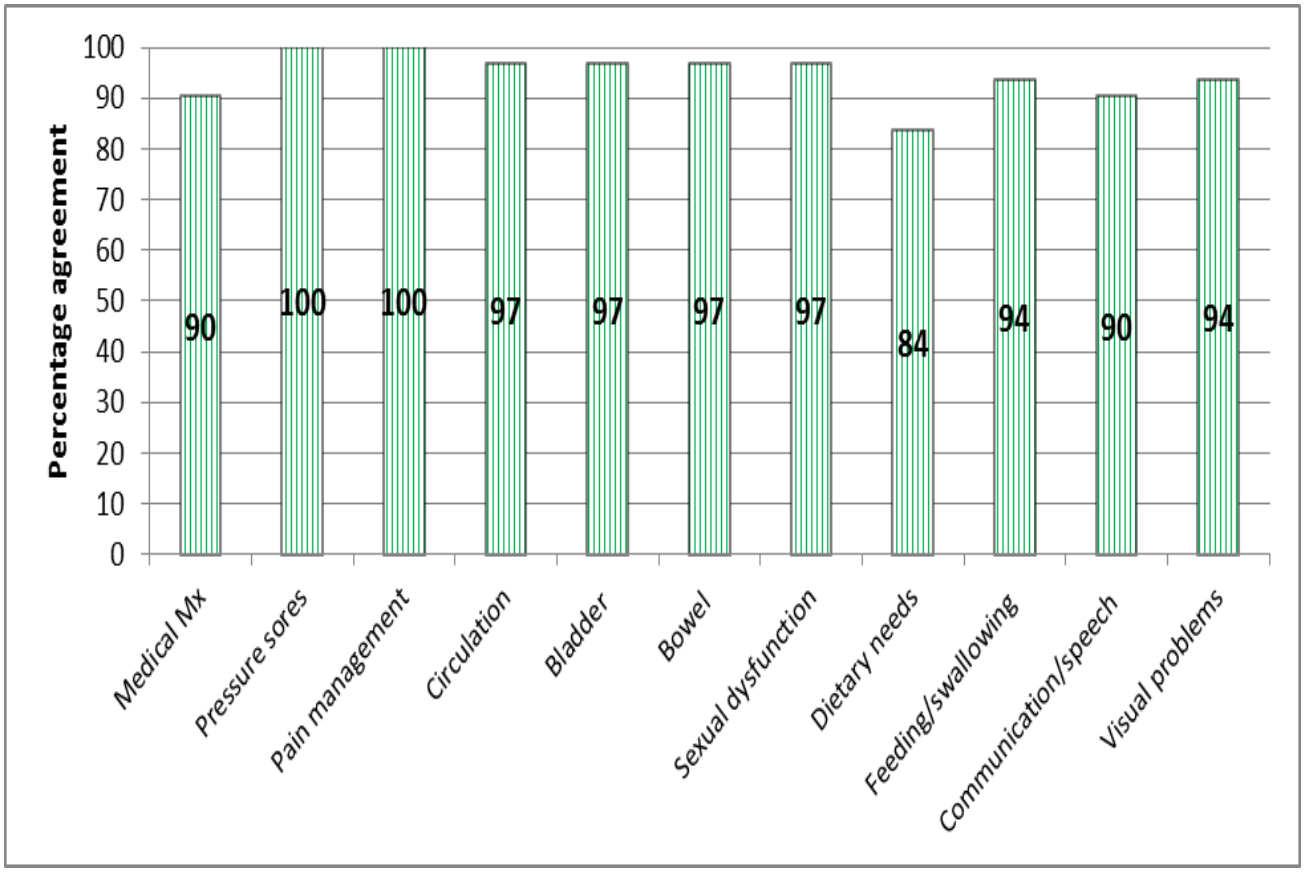


Problem	Self care	Mobility	School/ work needs	Cognition/ perception	Inter personal relation ships	Coming to terms with disability	Patient/ carer education	Transport/ community access	Financial needs	Patient/ carer support
GP %	80	80	70	70	60	30	80	50	80	70
p nGP =10	0.057	0.057	0.171	0.171	0.376	0.171	0.057	0.624	0.057	0.171
P%	59	68	77	41	50	77	86	82	68	55
p nP= 22	0.261	0.068	0.010	0.261	0.584	0.010	0.001	0.003	0.068	0.416

Figure 5.32ii Percentage agreement for each sample group: Bio psychosocial problems seen in the community (2)

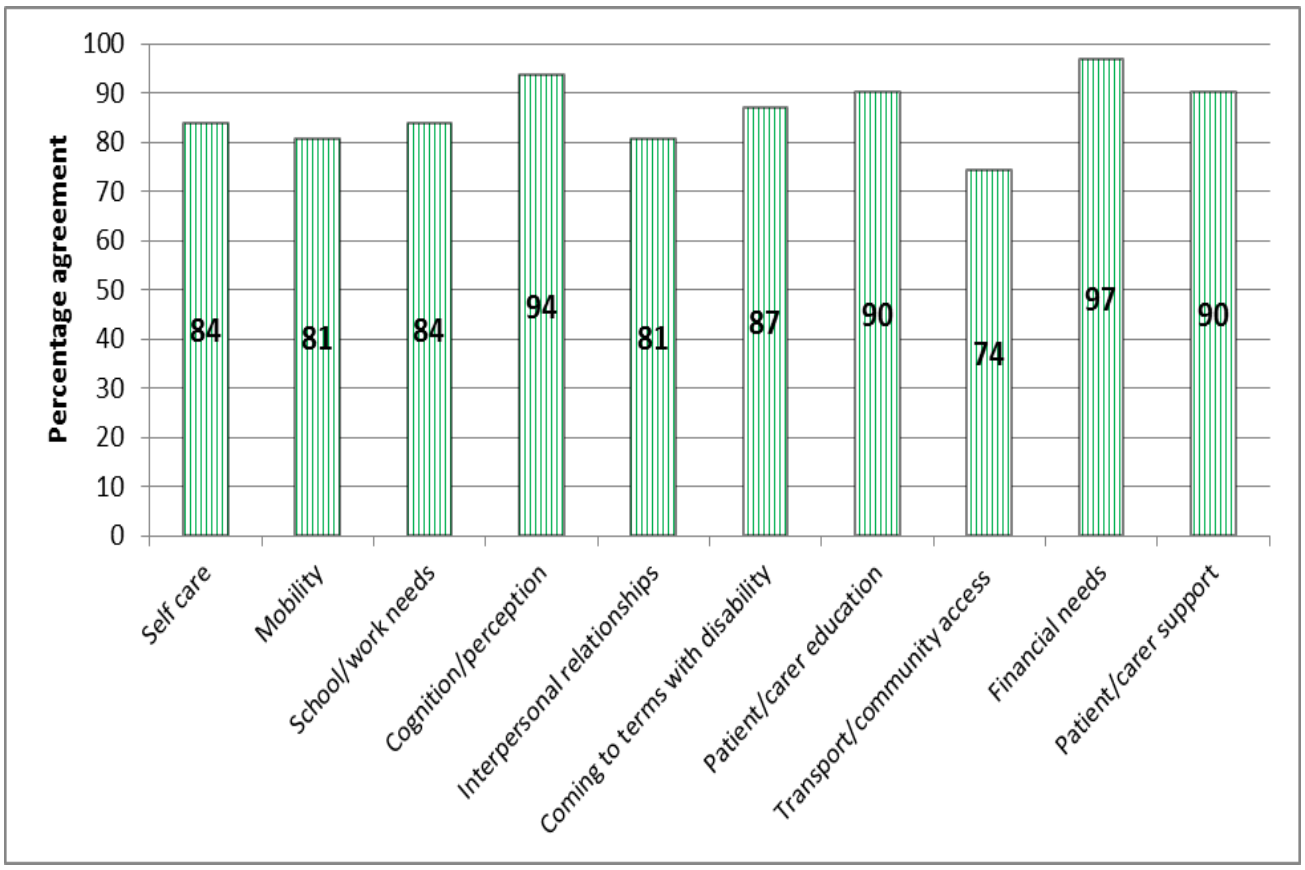
Pain and communication were reported significantly amongst GPs and patients significantly raised the problems of school and work integration, coming to terms with a disability, patient and carer education and transport and community access. Seven problems (circulation, bladder, sexual dysfunction, dietary needs, feeding and swallowing,

visual cognitive and perceptual problems) were seen by the majority of GPs but reported only in a minority of patients.



Problem	Medical Mx	Pressure sores	Pain management	Circulation	Bladder	Bowel	Sexual dysfunction	Dietary needs	Feeding/ Swallowing	Communication/ speech	Visual problems
Sample no (n)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)
p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Figure 5.33i Percentage agreement: Bio psychosocial problems that should be taught (1)



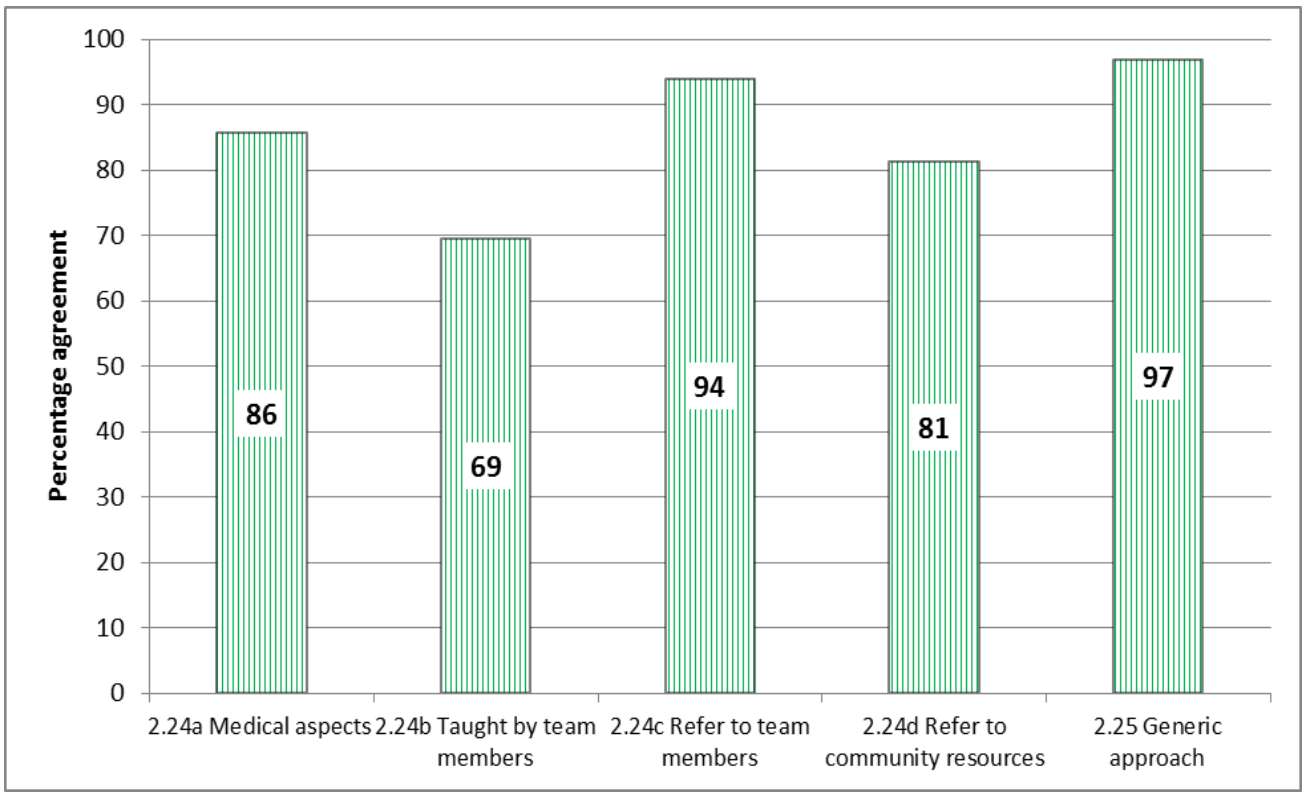
Problem	Self care	Mobility	School/ work needs	Cognition/ perception	Inter personal relation ships	Coming to terms with disability	Patient/ carer education	Transport / communit y access	Financial needs	Patient/ carer support	Problems
Sam ple no (n)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)	31 (RD, T)
p	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.006	0.000	0.000	0.000

Figure 5.33ii Percentage agreement: Bio psychosocial problems that should be taught (2)

As with the health conditions there was a significant agreement with all of the problems listed by rehabilitation professionals.

Again there was a discrepancy between what is offered in the programme, as supported by the rehabilitation professionals and by GPs and patients in the community. The same reasoning as for 2.22 was applied.

The selected sample participants were then asked more general questions regarding how these heath conditions and bio psychosocial problems are taught, the results being summarised in the following figure.



sample no	35 (MC, CM, L, S6)	36 (MC, CM, L, S6)	33 (MC, CM, L, S6)	32 (MC, CM, L, S6)	32 (MC, CM, L, S6)
p	0.000	0.015	0.000	0.000	0.000

Figure 5.34 Percentage agreement: Students are taught to manage disability by various means

There was significant agreement with all of the questions namely:

- Students are taught how to manage the medical aspects of disability.
- Students are taught by members of the inter or multidisciplinary team members.
- Students are taught how and when to refer to members of the multidisciplinary team.
- Students are taught how to refer patients to community resources.
- Students are taught a generic approach to managing disability.

This quantitative data was complemented by the following narrative information. On analysis of all the problems offered in addition to the list provided in question 2.23 and responses to question 2.24a, 'What do GPs (medical students) need to know about the medical management of disability?', there was a view that future doctors need to have a holistic and general approach to persons with disabilities as supported by the following ideas:

- Medical students must learn to "*look under the bed-sheets, not only at the bedside charts*!" (T7).

- They need to have a range of knowledge and skills to evaluate patients with disabilities e.g. "*basic skills to enable them to communicate with non-speaking clients*" (L18),
- They need to know medical management and prevention of complications and students need to be able to cope with being placed in "*remote and underserved areas*… (where)…*there are no therapists*" (L18).

Specific topics listed could be linked to the list of problems provided in question 2.23 of the questionnaires of which some examples are given below.

Biological aspects that needs to be covered include: a firm background knowledge of the medical and emergency treatment of the condition, being able to manage aggressive patients (RD2), acute life threatening complications (Deep Vein Thrombosis (DVT) and pulmonary embolism, pneumonia, electrolyte disturbances), pharmacological treatment and monitoring the toxicity of medications (GP3), awareness of propensity to other diseases (S3-7) and management of the disabled requiring admission for acute illness, long term treatment, prevention and treatment of medical factors which may aggravate their situation, management of risk factors, treatment of problems e.g. constipation, heartburn, peptic ulcer, urinary tract infection, spasticity and contractures, depression, maintain a healthy lifestyle. Students should be able to manage tracheostomies, tube feeds (in and out of hospital) and identify

"*patients requiring supplementary dietary treatment"* (T19).

The students also need to be able to determine the medical and functional prognosis the latter being in conjunction with the team. The students need to have an understanding of

"*the goals of other disciplines, what is physically possible to achieve and how long it will take*" (RD9).

They should be able to discuss the injury and the medical management empathetically with the patient,

"*take time to educate, educate, educate*" (T9), on a level that the patient understands.

"*Students have to learn how to present informative group talks and family meetings*." (RD2).

This will facilitate patient participation in decision making and may improve compliance and prevention of further disability.

Responses that referred to patient independence namely: "*exactly what the patient would struggle with e.g. opening taps, driving assistive devices*" (S3-6), were aligned with problems listed in the questionnaire i.e. self-care, mobility and communication. The narrative information gained from question 2.24b, 'What do GPs (students) need to learn from other disciplines', provided the following detail relative to these problems: 22 comments referred to an understanding of the value of the roles and the services provided by these disciplines as well as an understanding of what other disciplines expect the doctors role to be (RD4). This knowledge will enable the doctor to make appropriate referrals,

"*as soon as possible, not just before discharge or when they do not know what to do*" (T17).

The importance of teamwork was raised by eight respondents i.e. that all should work together in a team. RD7 offered that doctors should

"*not to be too proud to ask questions and consult*".

Suggestions were made that the best way to learn the aforementioned would be by observing and by spending time with disciplines at work or participating in team meetings. The involvement of the various team members in the rehabilitation training programme will be presented further under indicator 5.1.

Specific functional skills listed that need to be taught were: strengthening, stretching, alternative communication, transfer skills, activities of daily living, assistive devices, home programmes, work assessment, cognition. T4 noted that wheelchair prescription should be done by a qualified professional but did not specify if this should be taught to the medical students.

Financial and work related problems were expanded to encompass will preparation (RD8), legal aspects such as power of attorney and guardianship, medical boarding or declaration of temporary disability. Students should know how to complete these forms correctly or where to get help to do so (RD10). Knowledge of medical aids and prescribed minimum benefits (PMB) conditions was also listed. Further legal aspects included

"*protecting patients from families where there is a risk of abuse or a history of assault*" (RD10).

The categories coming to terms with disability, patient/carer education and patient/carer support covered items listed by respondents as physical and emotional adaptation by the patient and family. T14 raised the need for referral to a psychologist for

"*psycho-education and preparation for possible anxiety and depression post discharge. If there is evidence of pre-morbid psychological problems, referral to a psychologist is essential*."

RD10 mentioned that

"*dealing with families…is by far the hardest part…are often more work than the patient…are the most demanding part of my job…are pivotal in the rehabilitation process, and the patient is usually at their mercy once discharged*". This linked to the statement above regarding family abuse.

Seven respondents referred to a deeper concept of independence and quality of life e.g. self-esteem, self-image, and not giving up hope and

"*how the patient's perspective and treatment plan is brought together to give the patient optimal quality of life*" (S3-33).

These were included with the theme coming to terms with disability.

These comments referred more to an individual level of acceptance. 15 respondents further referred to the student learning how to facilitate acceptance and integration within the community, referring to stigmatisation (S3-3), how the community has treated or

accepted them, how the community's reaction impacts on the person's disability, how to make the community aware of disabling health conditions, support structures available and

"*how to send a person home that doesn't want to go home due to the poor socio-economic conditions*" (S3-35).

Poor social circumstances was listed by two third year students as a cause of disability, with T19 commenting on the

"*conditions in which some of these patients live are appalling, even in some community based health facilities*"

and T15 identifying the need for students

"*to go into the houses to see that reality compares very poorly to the ideal situation in a rehab centre. Overcrowding, lack of privacy, accessibility challenges, lack of transport, low income*."

This was added as a new category 'community integration'. This goes beyond the content of the problems listed such as transport and community access and work needs. GP4 stated that GPs were involved in applications for council housing and this would be included under this problem heading.

In addition to this information gained against question 2.23, from the replies to the question 2.24d, 'What do GPs (medical students) need to know about community resources?', 29 respondents said that a list of resources, referral criteria and services offered by different resources should be provided. However it was also acknowledged that

"*it would be an impossible task to equip them of the knowledge of all the different communities*" (RD2)

It was suggested further that they be taught how to find out what resources are available in the community (RD5 and 10). Students need to learn how to collaborate with community resources. Visits to community resources (over and above visits to community rehab resources as mentioned under indicator 2.1) and follow up on referrals to such resources

were further suggestions. Students need to be made aware of policies and programmes e.g. tube feeding and nutrition supplementation programmes (T19), which was also regarded as knowledge of community resources.

5.2.3 Assessment of students

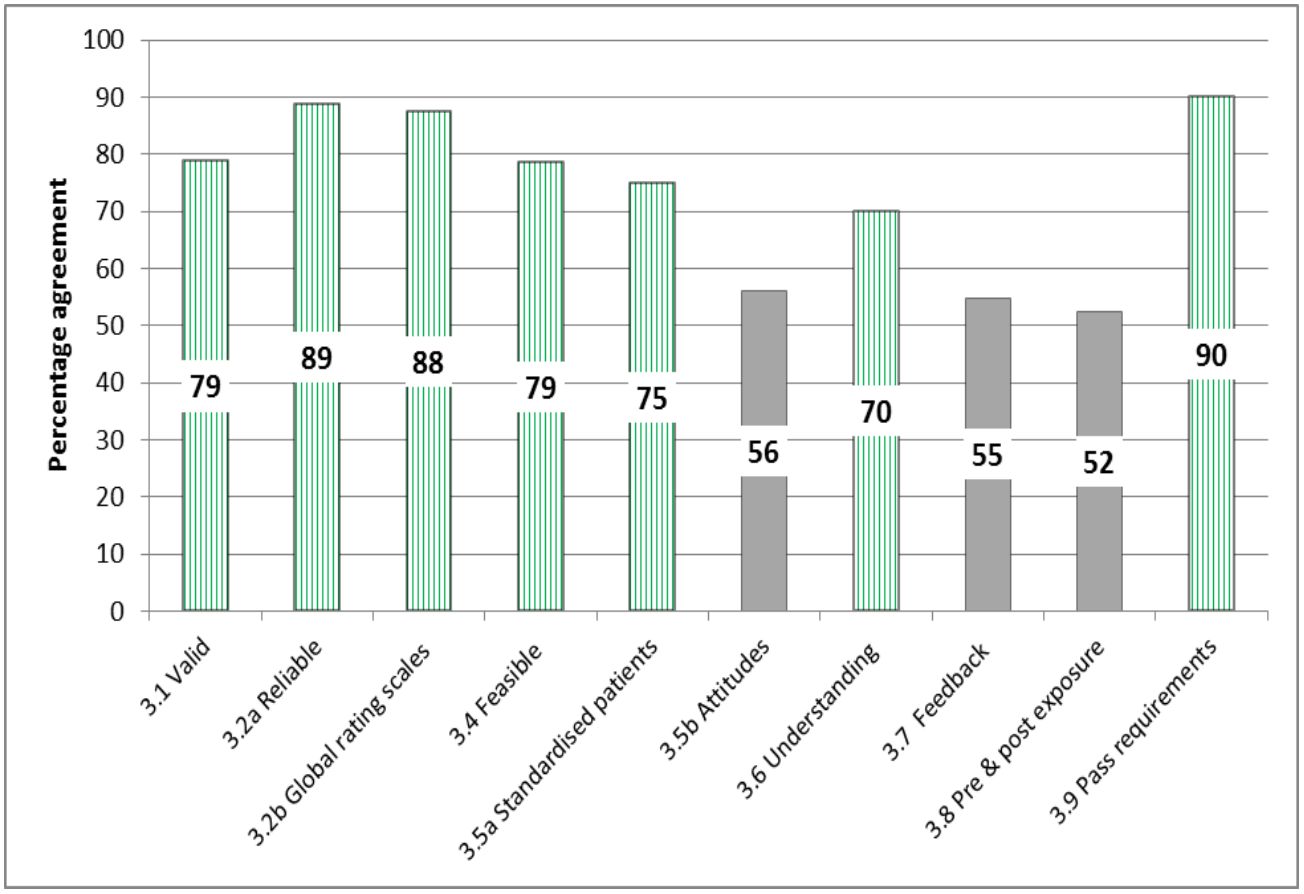
Indicator

- 3.1 The assessments are valid in that they test the programme's stated objectives.
- 3.2 Scoring criteria are used to improve reliability of assessments (to prevent inter and intra assessor variability) and global rating scales are used.

Note 3.3 will be presented after 3.9 as the other indicators have been grouped on the same histogram for convenience.

- 3.4 The assessment methods are feasible in relation to resources (finances, time, staff, equipment, venue, patients.
- 3.5 Standardised patients are used in OSCEs and can assess attitudes of students.
- 3.6 Understanding rather than recall is assessed.
- 3.7 The students receive feedback on their assessments.
- 3.8 The students are tested pre and post exposure to rehabilitation training in order to evaluate gain in knowledge, skills and attitudes during the programme.
- 3.9 Students are made aware of the pass requirements.

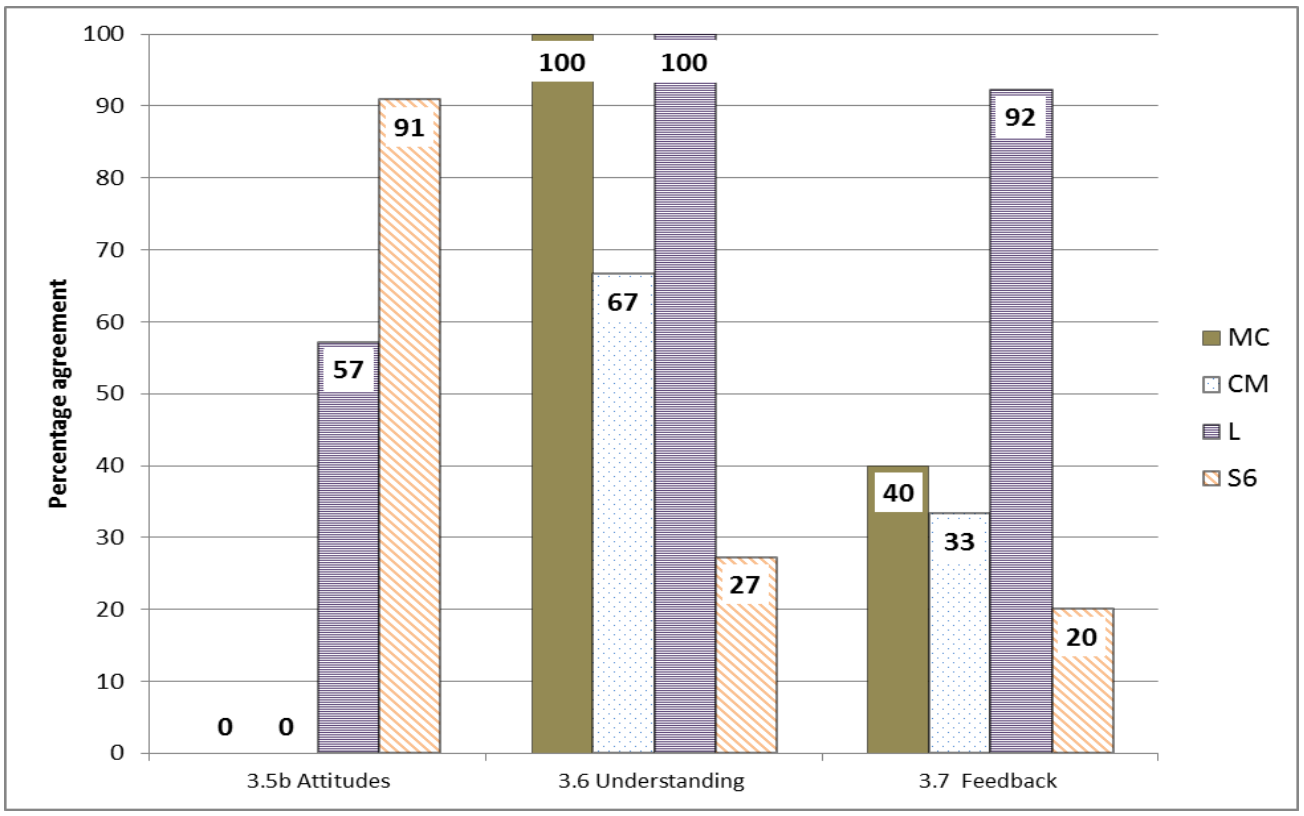
Results



Indicator	3.1 Valid	3.2a Reliable	3.2b Global rating scales	3.4 Feasible	3.5a Standardised patients	3.5b Attitudes	3.6 Understanding	3.7 Feedback	3.8 Pre & post exposure	3.9 Pass requirements
sample no	33 (MC, CM, L, S6)	18 (MC, CM, L)	16 (MC, CM, L)	28 (MC, CM, L, S6)	16 (MC, CM, L)	25 (MC, CM, L, S6)	30 (MC, CM, L, S6)	31 (MC, CM, L, S6)	21 (MC, CM, L, S6)	20 (MC, CM, L)
p	0.001	0.001	0.003	0.002	0.040	0.345	0.022	0.360	0.500	0.000

Figure 5.35 Percentage agreement: Indicators relating to student assessment in general

There was significant agreement that student assessments are valid, reliable, and feasible, that global rating scales are used and standardised patients are used in the OSCE, understanding rather than recall is assessed and the pass requirements are made known to the students. The chi-squared test showed a significant relationship between the responses and the sample groupings for questions 3.5b (p=0.010), 3.6 (p=0.002) and 3.7 (p=0.008). The data from these three questions was further analysed as given below.



nMC	5	5	5
MC%	0	100	40
pMC	0.037	0.037	0.500
nCM	2	3	3
CM%	0	67	33
pCM	0.240	0.500	0.500
nL	7	11	13
L%	57	100	92
pL	0.500	0.001	0.003
nS6	11	11	10
S6%	91	27	20
pS6	0.008	0.114	0.035

Figure 5.36: Percentage agreement for each sample group: General assessment methods

When the data was analysed per sample group it was notable that the opinion of students was different to the other three groups on all three items. Students significantly agreed that patients assess their attitudes whereas the module chairs (significantly) and CRS managers disagreed. The module chairs and lecturers significantly agreed that understanding rather than recall is assessed, but the students disagreed insignificantly. Aggregate significant agreement for this sample was thus not accepted. The lecturers

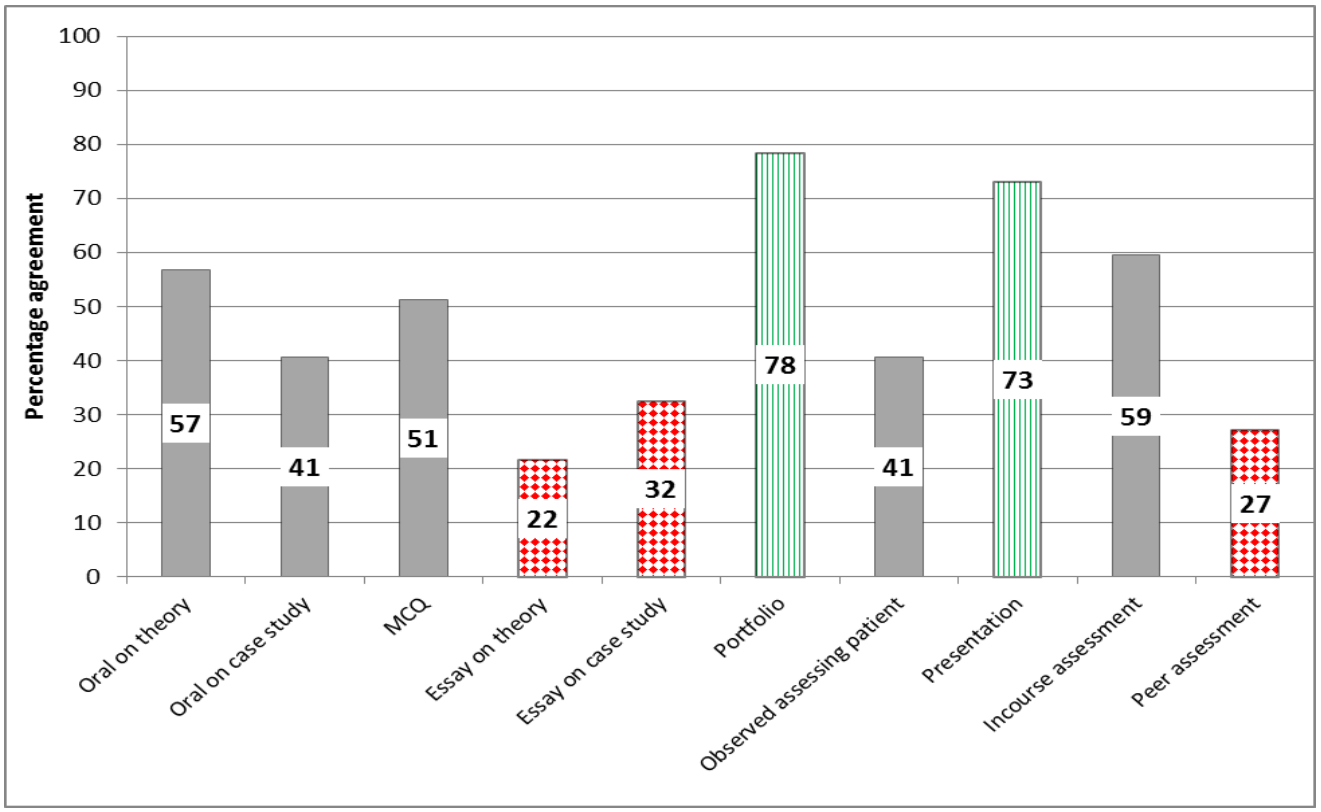
significantly were of the opinion that students get feedback on their assessments with the other sample groups not agreeing, the students significantly so.

Indicator

- 3.3 A variety of assessment methods are used.

Respondents were also asked to list assessment methods currently used but not listed in the questionnaire. They were also asked to add methods not on the list that could be used. The students were asked to volunteer what methods they found the most and least helpful.

Results

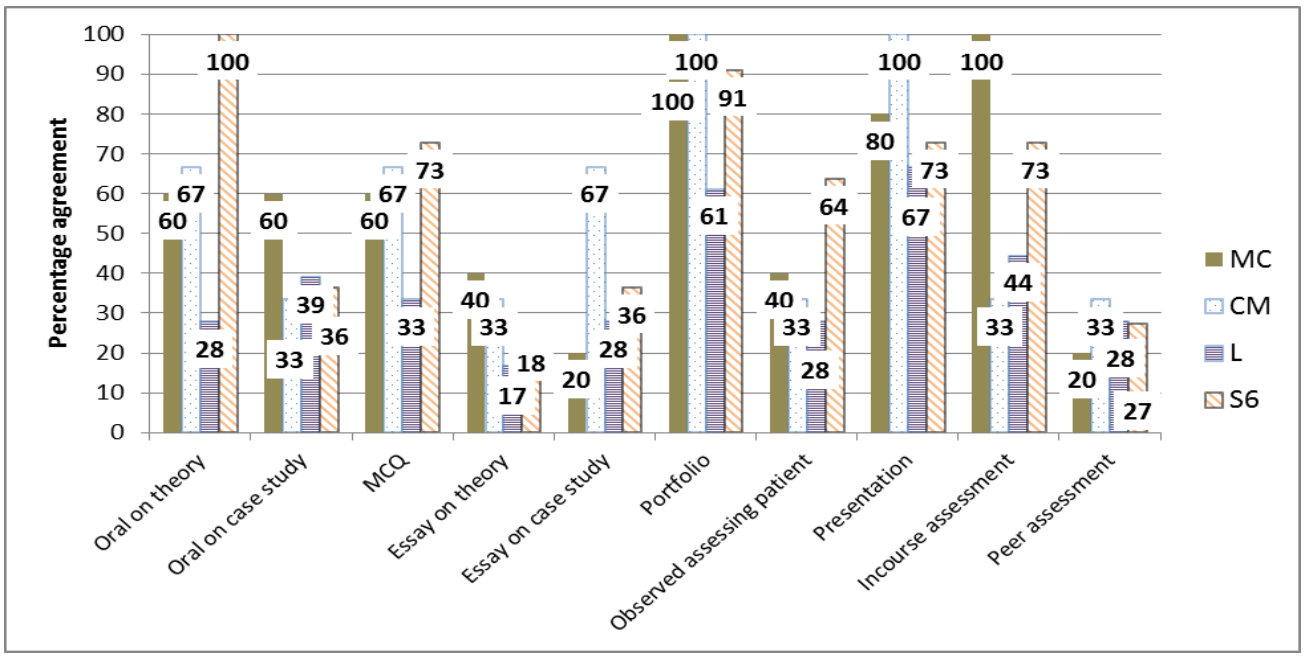


Indicator	Oral on theory	Oral on case study	MCQ	Essay on theory	Essay on case study	Portfolio	Observed assessing patient	Presentation	In course assessment	Peer assessment
sample no	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.255	0.162	0.000	0.001	0.024	0.001	0.162	0.004	0.162	0.004

Figure 5.37 Percentage agreement: Assessment methods used

There was significant agreement of the aggregate sample that students are assessed by portfolio assignments and presentations, with a significant disagreement that essays on theory and case studies, and peer assessments occur. No further methods currently used for the programme were offered by these four groups. There was over all poor consensus that a variety of assessment methods are used.

The chi-squared tests for oral testing of theory (p=0.000), portfolio assessments (p=0.049) and in course assessment of attitudes (p=0.036) showed significant relationship between the sample groups and the responses. All the methods offered were thus further analysed and are presented in figure 5.38.



Indicator	Oral on theory	Oral on case study	MCQ	Essay on theory	Essay on case study	Portfolio	Observed assessing patient	Presentation	In course assessment	Peer assessment
nMC	5	5	5	5	5	5	5	5	5	5
MC%	60	60	60	40	20	100	40	80	100	20
pMC	0.500	0.500	0.500	0.500	0.186	0.037	0.500	0.186	0.037	0.186
nCM	3	3	3	3	3	3	3	3	3	3
CM%	67	33	67	33	67	100	33	100	33	33
pCM	0.500	0.500	0.500	0.500	0.500	0.124	0.500	0.124	0.500	0.500
nL	18	18	18	18	18	18	18	18	18	18
L%	28	39	33	17	28	61	28	67	44	28
pL	0.0495	0.240	0.119	0.005	0.049	0.240	0.049	0.119	0.407	0.049
nS6	11	11	11	11	11	11	11	11	11	11
S6%	100	36	73	18	36	91	64	73	73	27
pS6	0.001	0.273	0.114	0.035	0.273	0.008	0.273	0.114	0.114	0.114

Figure 5.38 Percentage agreement for each sample group: Assessment methods used

This further analysis showed that students significantly agreed that they are tested by means of oral on theory but the lecturers significantly did not support this view. Where the module chairs and students significantly agreed that portfolios are used, the lecturers were

not in such strong agreement. The significant agreement by the aggregate sample was thus still accepted for this item within this indicator as is explained in the following chapter. There was significant agreement by the module chairs that in course assessments of attitudes and participation are used with some degree of student agreement, but non agreement by the other two sample groups.

Additional methods suggested that could be used for assessing students were the mini-clinical evaluation exercise (mini-CEX) where students are assessed in various clinical settings with a diverse set of patient problems. It was suggested that this can also be used for formative feedback. The questionnaire mistakenly omitted OSCE as an option so the use of this was not evaluated in this study. It was volunteered seven times by the third year students, but by none of the other respondents.

When asked about most and least useful assessment methods, the third year students favoured oral testing of theoretical (15 responses) and clinical (18 responses) knowledge and MCQs (20 responses). Nine third years volunteered that MCQs were not useful with S3-37 stating that this requires "*randomly guessing an answer*" which is inappropriate versus practical assessments.

In course assessments of practical skills e.g. "*individual presentation on a case to show that we understand and can apply the work*" (S3-7) was mentioned favourably 16 times in similar terms and this was added to the list established for the questionnaire. Continuous assessment would be useful if the students received feedback. Six students said that in course assessment of attitudes by facilitators was not useful and one student said that they did value assessment by patients.

Written evaluations were not favoured with theoretical (10 'useful' responses, 11 'not useful' responses) and clinical (12 'useful' responses, 11 'not useful' responses) essay being offered equivocally as useful and not useful. One student commented that

"*tests that require knowledge that will be available*" (S3-7) not to be useful. "*I feel the practical work matters more and criteria can always be referred to. Lecturers always try to catch you out.*" (S3-7)

The portfolio assessment was reported 15 times to be not useful by the third year students. Group projects and role play were additional items but were listed as not useful.

"*Work distribution in large groups is just always extremely imperfect and very often the final product reflects the work done by one or two individuals*." (S3-23)

The sixth year students named a variety of those on the original list as valuable as well as the extra methods named above, with a focus on clinical based exams, either written or oral (5 'useful' responses for each).

5.2.4 Students

Indicator

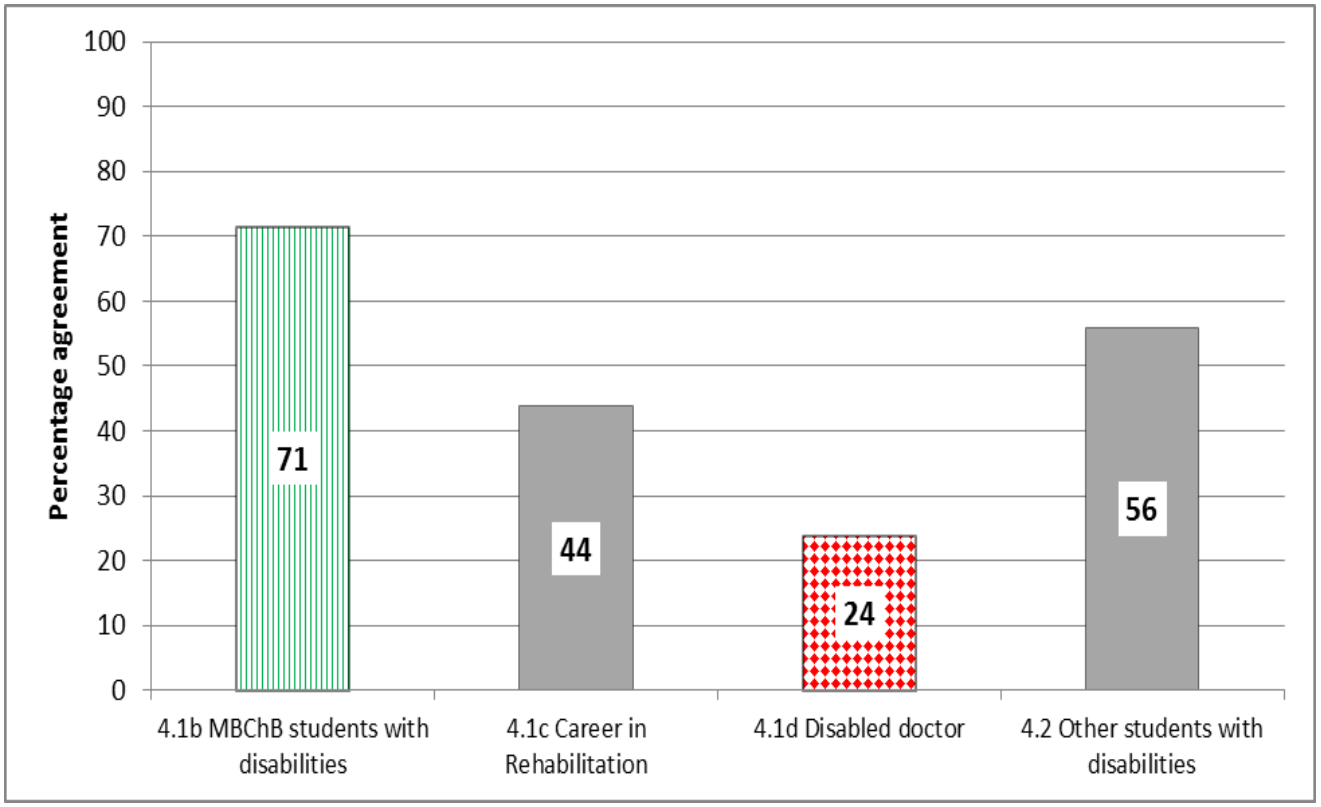
- 4.1 Enrolment of students with disabilities is supported by the faculty (preferable) as is evident by the presence of students with disabilities (insidious or overt) enrolled in the current programme.

All though not part of the indicators two questions were added to establish if medical graduates with disabilities were more likely to follow a career in disability and rehabilitation and if there are graduates with disabilities amongst the medical doctor work force. An error in the questionnaires listed these questions as 4.1b, c and d rather than a, b and c.

- 4.2 Students are exposed to other students with disabilities within the FHS formally or informally.

Results

The Head of the CCE commented that "*no disabled student is discouraged but equity is not actively sought*". He related that they had an applicant with very severe vision problems. They saw him and his parents and obtained an opinion from an ophthalmologist as to whether he would be able to successfully complete his internship.



sample no	49 (MC, CM, L, S3, S6, RD, P)	48 (CM, S3, S6, RD)	21 (P)	50 (CM, L, S3, S6)
p	0.002	0.235	0.015	0.240

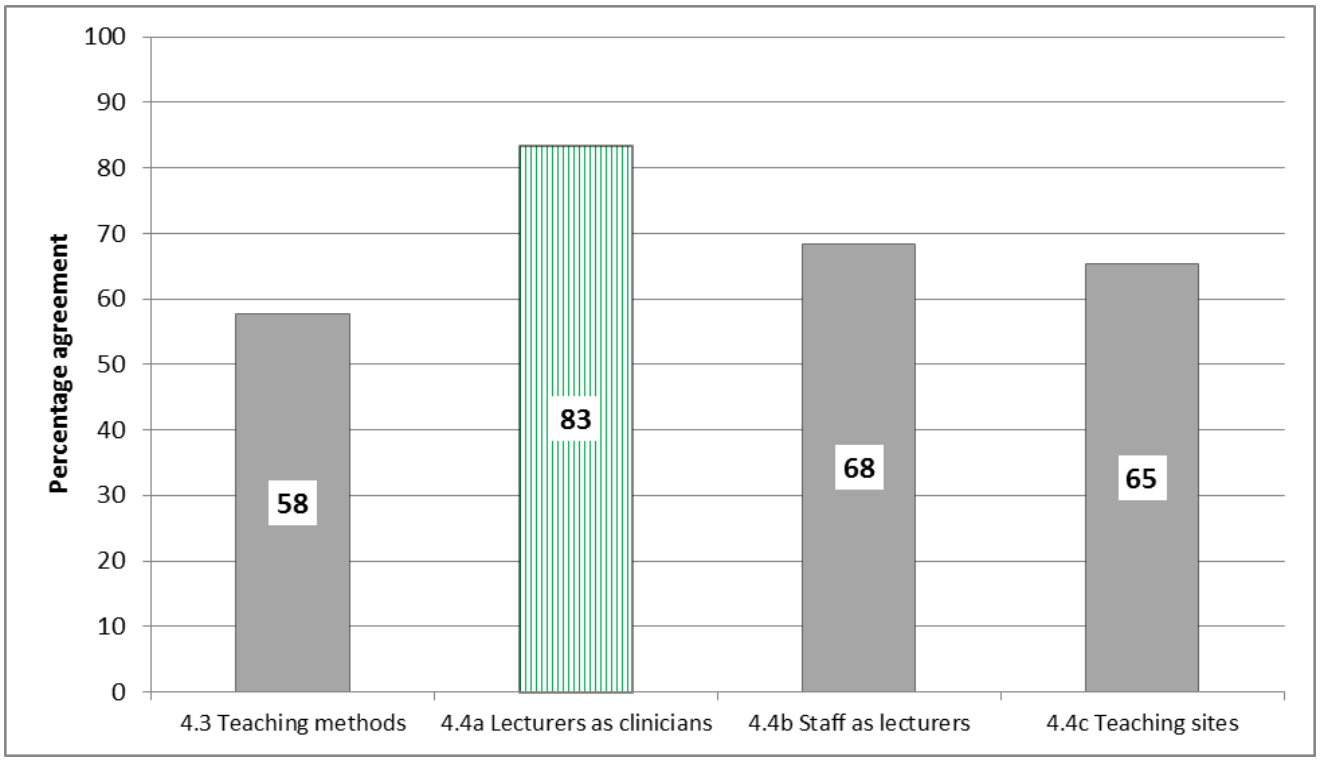
Figure 5.39 Percentage agreement: Students with disabilities and career choice

There was a significant agreement that there are students with disabilities enrolled in the MBChB curriculum of US. The respondents did not report significantly coming into contact with other students with disabilities within the FHS. Only one third year student and no sixth year students reported having a disability. There was disagreement that graduates with disabilities would follow a career in rehabilitation, and patients significantly disagreed that they had met a doctor with a disability.

Indicator

- 4.3 Students are satisfied with the various rehabilitation teaching methods.
- 4.4 Students are satisfied with the resources used to deliver the programme (such as the proficiency of staff as clinicians and lecturers and quantity and quality of clinical teaching sites).

Results



sample no	26 (MC, CM, L, S6)	18 (MC, CM, S6)	19 (MC, CM, S6)	26 (MC, CM, L, S6)
p	0.278	0.005	0.084	0.085

Figure 5.40 Percentage agreement: Student satisfaction

Although the students were significantly satisfied with the proficiency of lecturers as clinicians there was insignificant satisfaction with the teaching methods, the ability of the staff as lecturers, site co-ordinators, facilitators and assessors and the quantity and quality of teaching sites. As presented in indicator 2.1 there was a need for more practical, clinical patient exposure and access to community rehabilitation resources. Lectures if they are to be used need to be clinically relevant and need to be presented in a way that engages the students. The need for staff training is addressed in the next indicator.

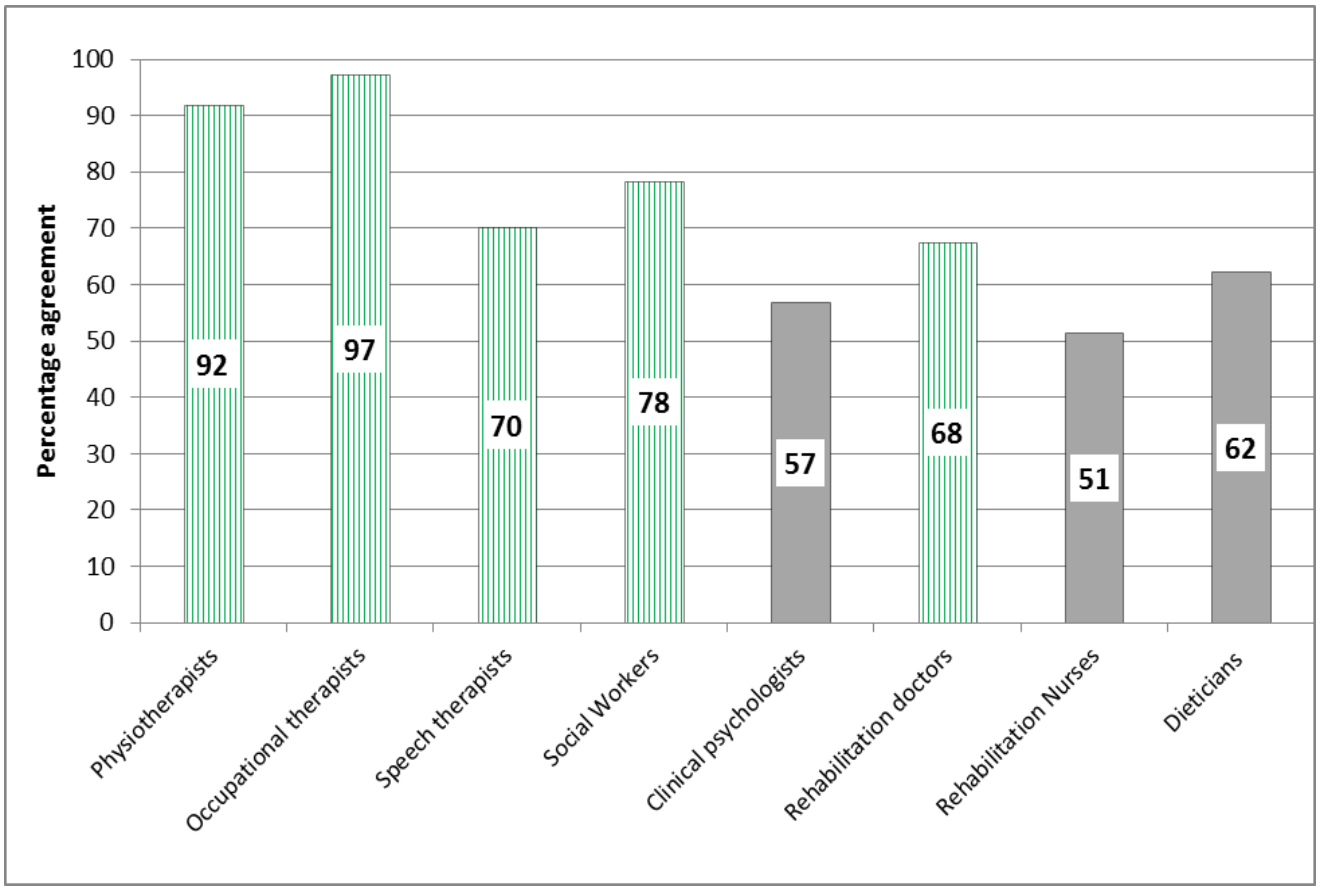
5.2.5 Academic Staff

Indicator

• 5.1 All disciplines involved in rehabilitation of the disabled (physio-, occupational and speech therapy, social work, clinical psychology, rehabilitation doctor, rehabilitation nurse, dietician) are involved in the delivery of the programme.

Respondents were also asked if other disciplines currently contribute to the delivery of the programme, or if there were additional disciplines that should be involved from their personal experience.

Results



Discipline	Physio therapists	Occu pational therapists	Speech therapists	Social Workers	Clinical psychologists	Rehabilitation doctors	Rehabili tation Nurses	Dieticians
sample no	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.000	0.000	0.011	0.001	0.255	0.024	0.000	0.094

Figure 5.41 Percentage agreement: Disciplines involved in the delivery of the programme

There was significant opinion that most of the suggested disciplines are involved in the Rehabilitation programme. Of note was the barely positive score for clinical psychologists and rehabilitation nurses. The sample representation of these disciplines was also lower in

this study (one and two respectively) as were the speech therapist and dietician (one and two respectively). Their contribution to the rehabilitation process and thus the training was highlighted by the respective statements of sample representatives who were involved in this study, that

"*psychology is often neglected with rehabilitation – focus is on physio and OT as non-medical intervention*" (T14) and

"*Clinical nurse practitioners are often not valued as worthy team members*" (T15).

GPs, Medical officers and COSMOs, Home based carers (HBC) and patients were listed as currently contributing to the programme.

From the respondents personal exposure to rehabilitation resources, including in and out patient rehabilitation services there were none that had no access to any resources as tabled below.

Table 5.1 Percentage respondents in each sample with access to various rehabilitation professionals and resources

	Physio therapist	Occupational Therapist	Speech Therapist	Social Worker	Clinical Psychologist	Rehab Doctor	Rehab or Orthopaedic nurse	Dietician	In patient rehabilitation facility	Out patient rehabilitation facility
Module Chairs	100	100	60	100	60	60	40	100	60	80
CRS managers	100	100	100	67	100	100	67	100	67	67
Lecturers, Site co-ordinators, facilitators and assessors	93	100	71	67	67	56	39	72	50	67
General Practitioners	100	90	60	80	80	30	10	90	40	50
Rehabilitation Doctors	100	100	100	100	90	N/A	80	100	90	50
Team members	100	80	75	76	55	57	25	60	57	48
Mean	98	94	74	80	70	54	38	80	58	57
Mean in community sample groups (GP&T)	100	85	68	78	68	44	18	75	49	49

In addition to the list provided two respondents added HBC or community rehabilitation workers and two mentioned the orthotist but there was no mention of a prosthetist. This is mentioned as the discipline is termed Medical Orthotist and Prosthetist (MOP). A seating specialist was mentioned twice, but this was not considered a discipline in itself. A wound care sister was added (1 respondent), but the orthopaedic sister, mentioned twice was considered to be a rehabilitation nurse. One respondent referred to medical specialists (e.g. Psychiatrist, Optometrists) as members of the rehabilitation team and religious ministers and politicians were also listed against this indicator.

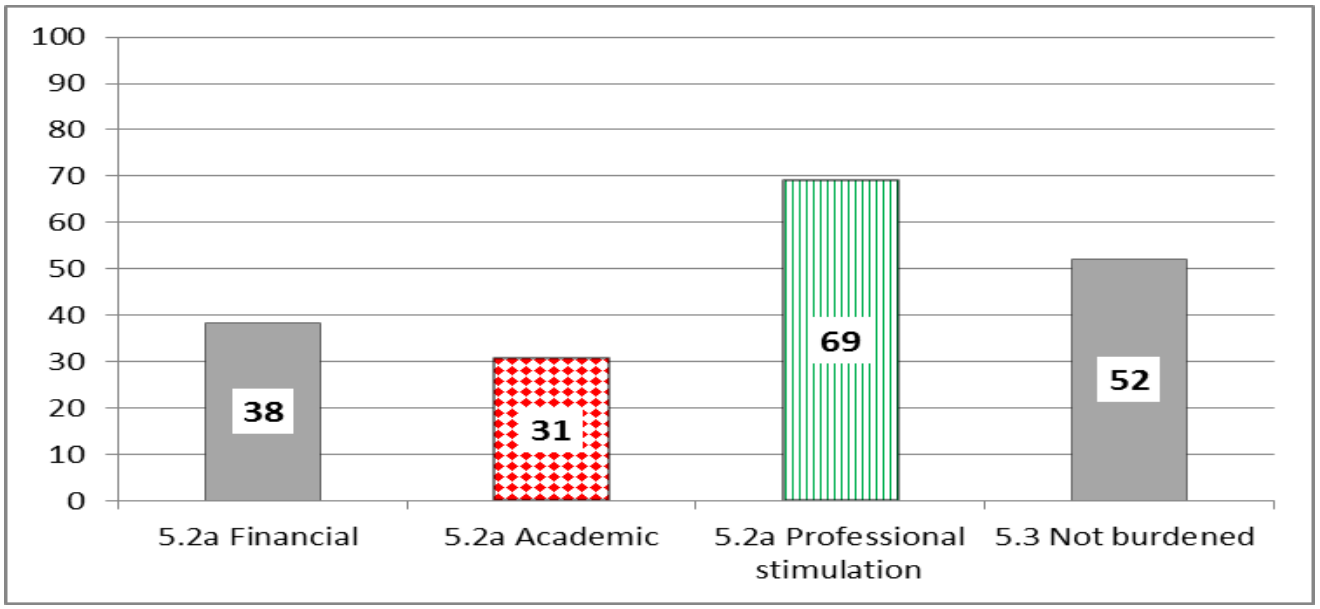
Indicator

- 5.2 Staff involved with the programme are rewarded in some way e.g. monetary, academic rewards or recognition, altruistic reward, professional stimulation.

Respondents were asked if staff are currently rewarded in other ways and if any other rewards could be considered.

- 5.3 Staff involved with the Rehabilitation programme are not burdened by the programme e.g. competition for clinical or personal time (preparation for lectures or contact session, preparing and marking assessments), incurring of expenses (travel and teaching materials).

Results



sample no	26 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)	23 (MC, CM, L)
p	0.163	0.039	0.039	0.500

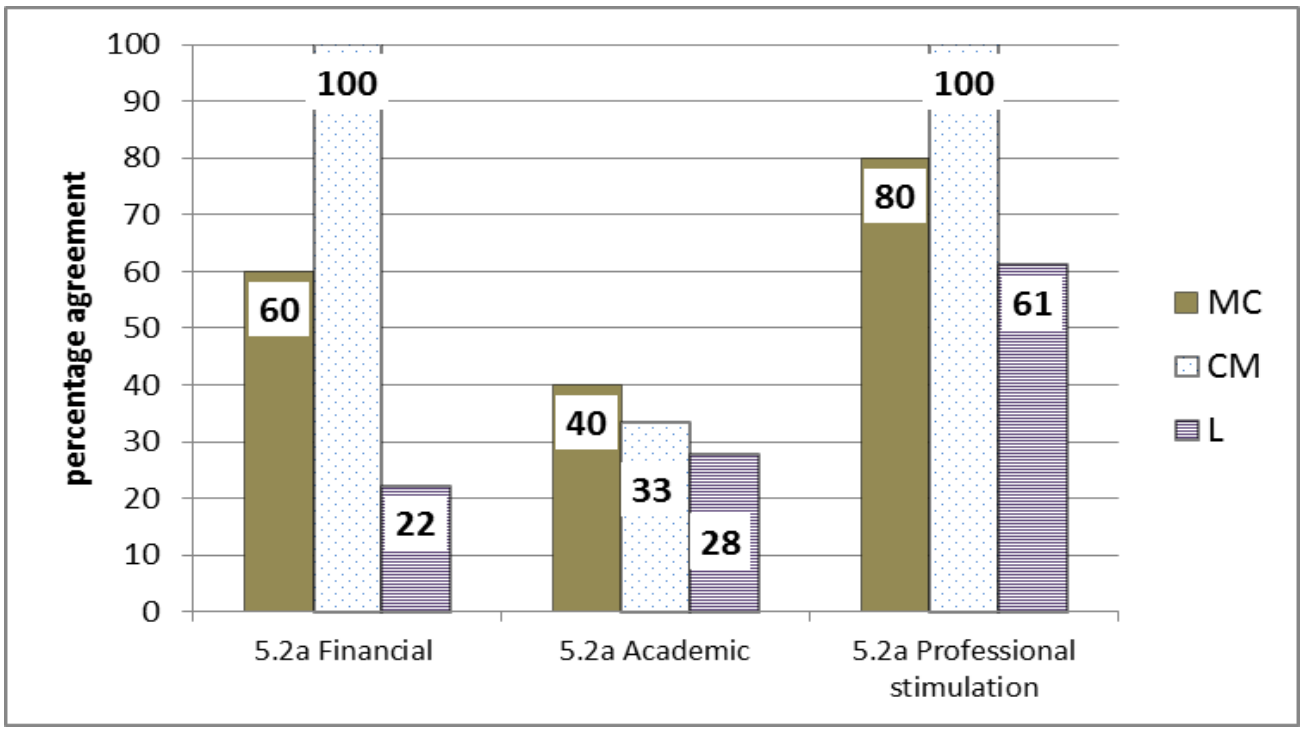
Figure 5.42 Percentage agreement: Staff reward

There was significant agreement that staff are rewarded for training medical students through professional stimulation, and significant disagreement with reward through academic recognition. Two lecturers marked that they are rewarded in none of these or any other ways, but one, L10, wrote that they are rewarded by

"*sharing specialised knowledge and expertise and passion for rehabilitation with these young Doctors to be*."

No other rewards were added as being used in the current programme. The burden of involvement with the programme was seen equivically.

The chi-squared test showed a significant (p=0.031) relationship between the responses and membership of the sample groups for the question, 'staff are financially rewarded'. The analysis of responses for each sample group for all the reward methods was analysed and is presented below.



nMC	5	5	5
MC%	60	40	80
pMC	0.500	0.500	0.186
nCM	3	3	3
CM%	100	33	100
pCM	0.124	0.500	0.124
nL	18	18	18
L%	22	28	61
pL	0.017	0.049	0.240

Figure 5.43 Percentage agreement for each sample group: Staff reward

Although there was significant non agreement that staff are rewarded financially for the lecturer sample group, the CRS managers were in 100% (not statistically significant due to small sample group size) agreement that they are financially rewarded. The reward scores were generally lower for lecturers than the opinions of module chairs and CRS managers. Only the score for professional stimulation was thus significantly in agreement.

There were several suggestions for ways that staff could be rewarded that tied into the provided categories namely: Financial (exemption from paying university fees), academic

(conference attendance, joint appointments, use of the library), professional stimulation (accessible CPD activities). L4 emphasised this by writing:

"*site co-ordinator's contribution is not currently recognised. Never asked to be part of academic seminars or other functions on main campus*."

Letters of gratitude and acknowledgement, could have secondary financial gain if student involvement is

"*considered*…(by the DoH)…*staff performance management system* (SPMS)". (L2)

Indicator

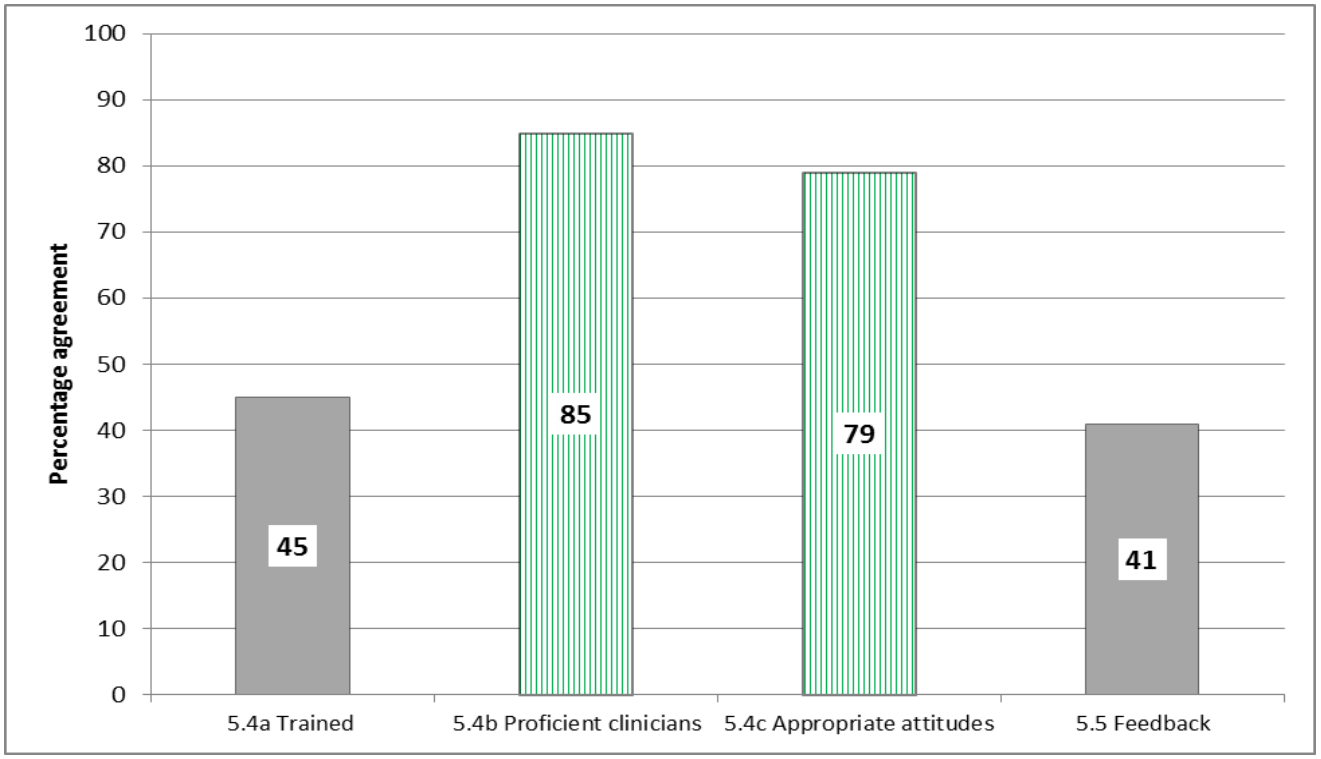
- 5.4 Staff

- are trained in educational principles in order to educate, site co-ordinate, facilitate and asses knowledge, skills and attitudes
- have clinical proficiency
- have appropriate attitudes and personal attributes (compassion, objectivity, commitment, humour, communication skills, appreciation of student strengths and weaknesses) conducive to lecturing and facilitation.

An additional question was posed to various sample groups to ascertain what training is required for staff.

- 5.5 Lecturers, site co-ordinators, facilitators and assessors get feedback on their performance.

Results



sample no	20 (MC, CM, L)	33 (MC, CM, L, S6)	19 (MC, CM, S6)	22 (MC, CM, L)
p	0.412	0.000	0.011	0.261

Figure 5.44 Percentage agreement: Staff development

There was significant agreement that staff are proficient clinicians and have appropriate attitudes to train students, although S6-4 commented that

"*staff need to be more patient with students and create a positive learning environment that will stimulate an interest in rehab medicine*".

In support of the proficiency of lecturers as clinicians, the lecturer sample group had a mean number of five years involvement with the programme and 14 years clinical experience (range 1-40 years).

There was disagreement that staff are trained in educational principles and this supported the results of indicator 4.4b that students were insignificantly satisfied with staff as lecturers. The following staff development was suggested:

- Educational training: facilitation of interdisciplinary teaching and learning, facilitation of small groups, short course in clinical supervision, lecturing skills, reflection, assessment

- Orientation to the MBChB Rehabilitation programme as supported by the following examples:

"*information about the MBChB course and what your role should be*" (L2),

"*have previously had a workshop on expectation of the facilitators but this could be on going*" (L12).

"*Communication with the site co-ordinators are non-existent. Site visits, seminars and personal contact are vital to make sure students and patients in the district and sub district level benefit*." (L4)

"*Therapists often do not know about this* (the Rehabilitation programme) and find students shadowing patients in their area to be "*intrusive to the treatment sessions*". This needs "*to be looked into for the benefit of the patient but also the students who could end up feeling spare/unwelcome*." (L10).

A further category for staff development identified was:

- Rehabilitation specific training: ICF, human rights, seminars on rehabilitation issues (L4) and with reference to indicator 5.2, this can be CPD accredited. L5 suggested that lecturers

"*must have post graduate training in the field of rehabilitation*."

An insignificant disagreement that lecturers get feedback on their performance was supported by a lecturer stating that

"*some feedback following case presentations would be a useful tool to evaluate our services from an objective source and incorporate recommendations if any into our programme if relevant. At the moment it seems a bit one sided*" (L10) and

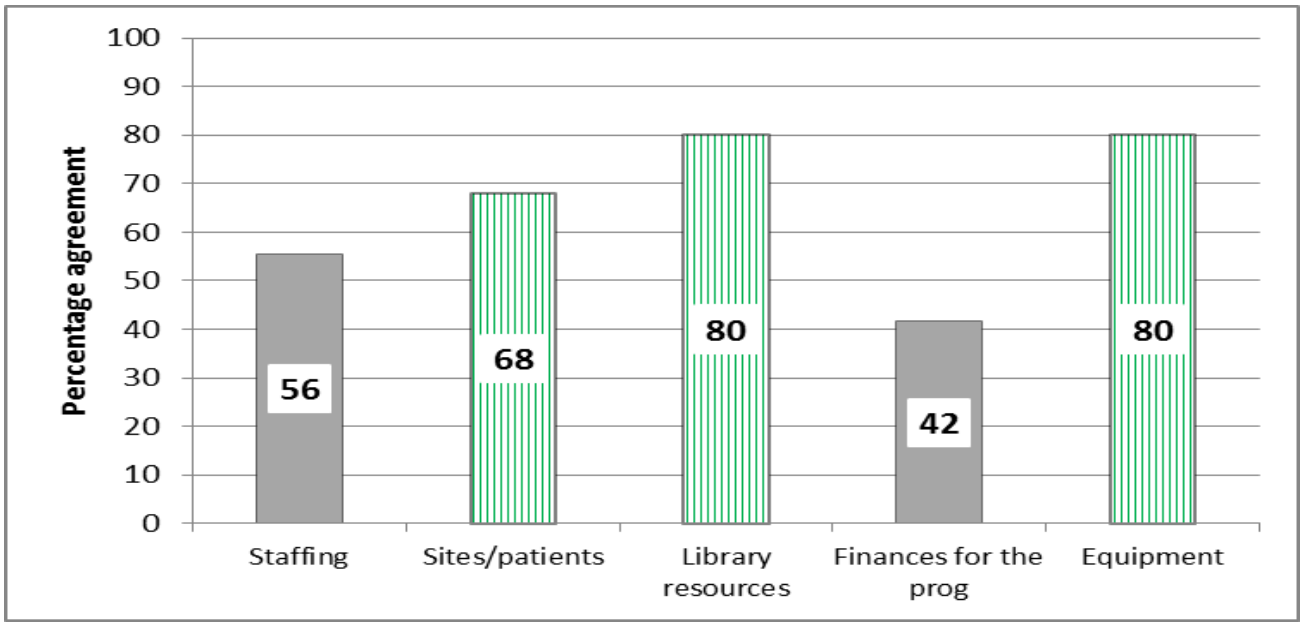
"*I would like to get a detailed feedback on the marks the students received for their rehab presentation at the end of their 2 week family medicine rotation*." (L15)

5.2.6 Educational resources

Indicator

- 6.1 The department delivering the programme has adequate (number and quality) resources (staff, clinical teaching sites, library resources, finances and equipment) to deliver the programme.

Results



sample no	27 (MC, CM, L, S6)	28 (MC, CM, L, S6)	20 (MC, CM, L, S6)	12 (MC, CM, L)	25 (MC, CM, L, S6)
p	0.350	0.044	0.007	0.386	0.003

Figure 5.45 Percentage agreement: The CRS has adequate resources to deliver the programme

Although the results showed significantly that there are enough sites, library resources and equipment to deliver the programme, staffing and finances are not considered adequate.

Indicator

- 6.2 The department delivering the programme allocates resources (financial, human) to the MBChB programme proportionately according to its other activities.
- 6.3 The programme is costed and has a dedicated budget.

Results

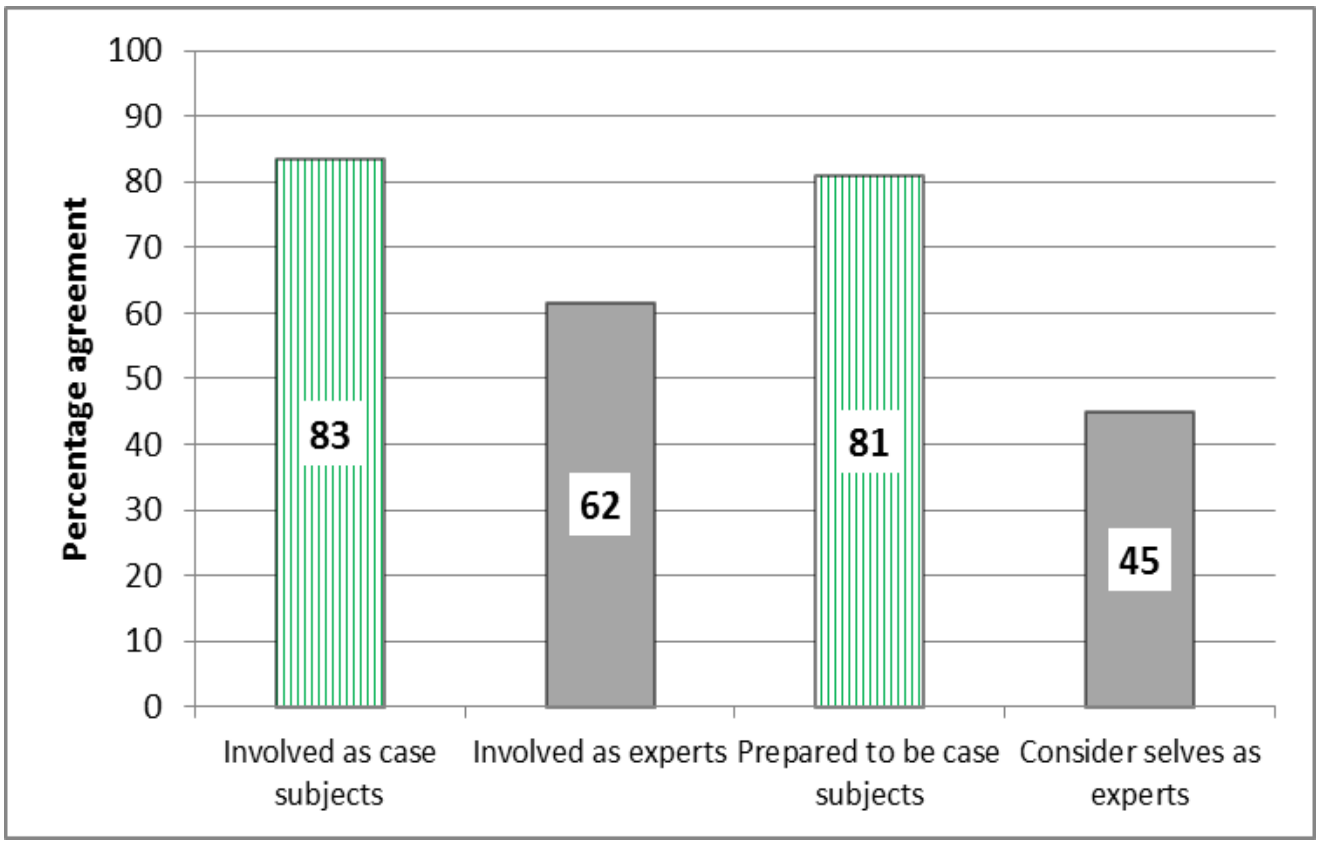
Of the two CRS managers that responded to question 6.2, there was a split opinion that resources were allocated proportionately to the MBChB programme. The one manager

that answered question 6.3 agreed with that the programme was costed and had its own budget. These were statistically insignificant results due to the small sample sizes, but as these were the only respondents who could respond to this indicator, the results were of value.

Indicator

- 6.4 Patients are involved in delivery of the Rehabilitation programme as case subjects and as experts in disability and rehabilitation and this is acceptable to patients, students (as referred to in indicator 2.14), and other stakeholders.

Results



sample no	30 (MC, CM, L, S6)	26 (MC, CM, L, S6)	21 (P)	20 (P)
p	0.000	0.163	0.004	0.412

Figure 5.46 Percentage agreement Patient involvement in the programme

The sample significantly agreed that patients are involved as case subjects and the patient respondents were prepared to participate. The involvement of patients as experts was not significant with the patients disagreeing that they see themselves as experts on the impact of disability on an individual. Involvement of patients in the programme was significantly

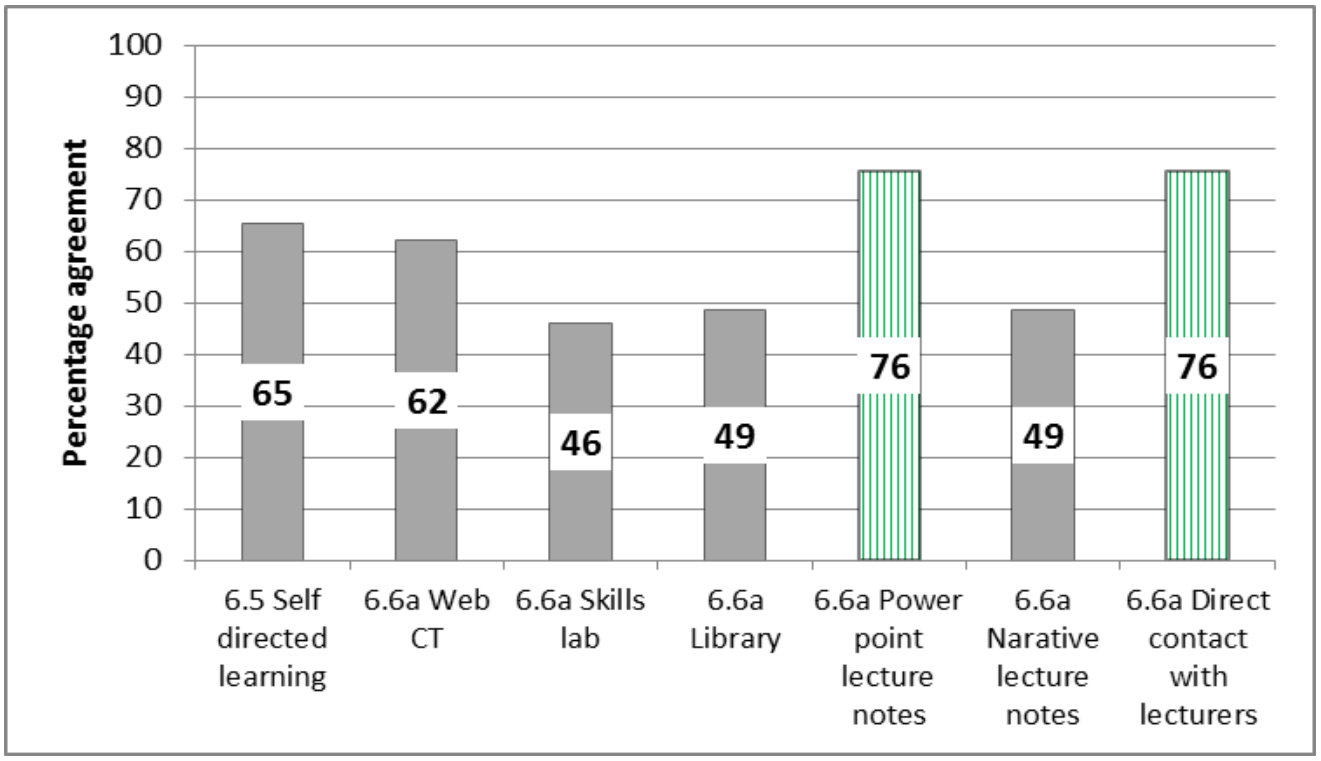
acceptable to students (as reported by CRS managers, lecturers and sixth year students in indicator 2.14) and patients.

Indicator

- 6.5 Resources are made available for self-directed rehabilitation learning.
- 6.6 The department delivering the programme makes use of resources (including IT) available within the faculty to deliver the programme.

Respondents were asked to list other resources that are currently used to deliver the programme as well as additional resources within the FHS that could be used. Students were asked what resources they found the most and least useful.

Results



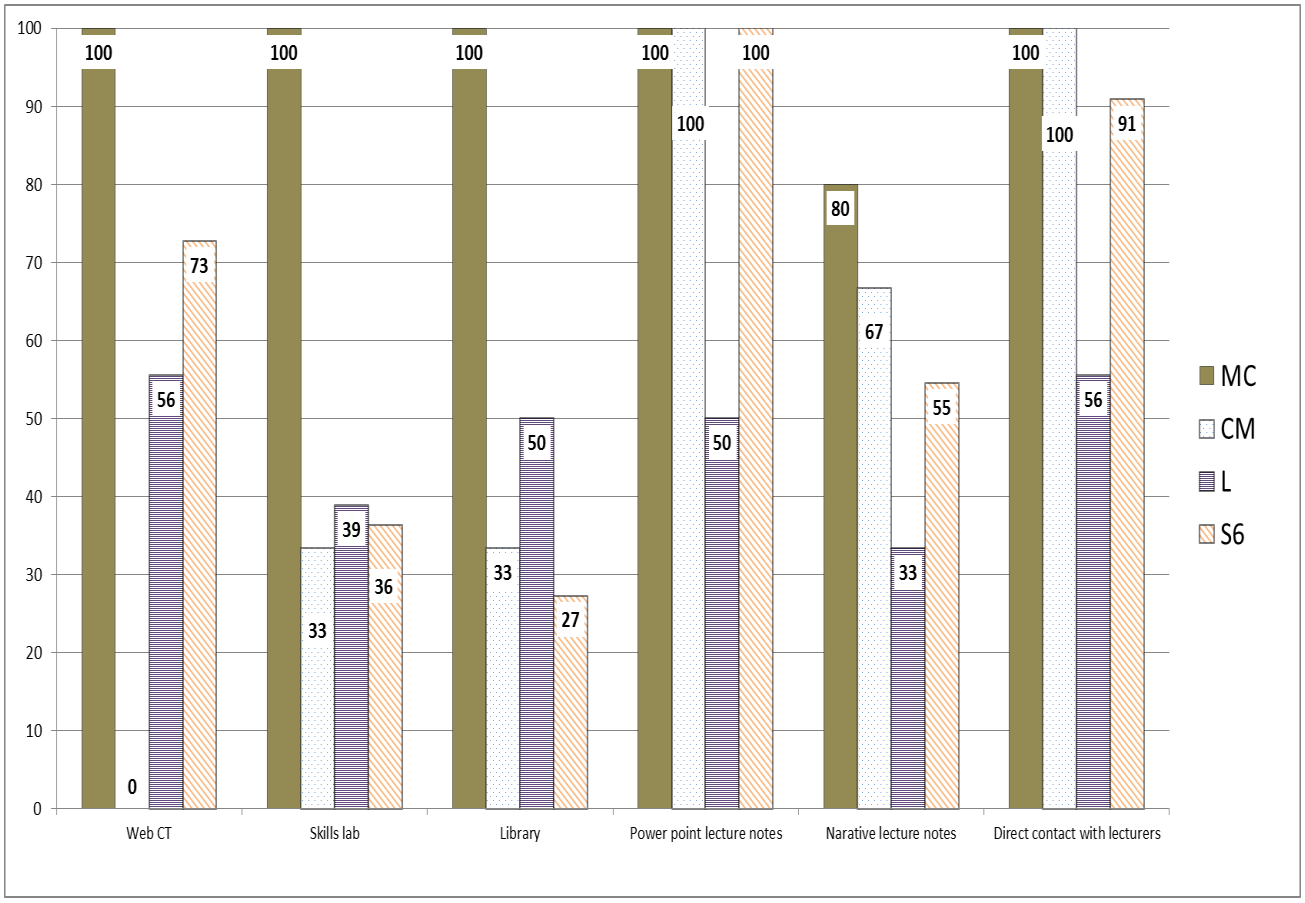
sample no	26 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)	37 (MC, CM, L, S6)
p	0.085	0.094	0.371	0.500	0.002	0.500	0.002

Figure 5.47 Percentage agreement: Resources available for learning

There was insignificant agreement that resources are available for self-directed learning.

The chi-squared test for use of WebCT (p=0.022), library (p= 0.048), lecture notes (p=0.029) and direct contact with lecturers (p=0.047) showed significant relationship

between the results and the sample groups. The resources used were thus further analysed as presented in the following figure.



Resource	Web CT	Skills lab	Library	Microsoft Power Point©. lecture notes	Narrative lecture notes	Direct contac with lecturers
nMC	5	5	5	5	5	5
MC%	100	100	100	100	80	100
pMC	0.037	0.037	0.037	0.037	0.186	0.037
nCM	3	3	3	3	3	3
CM%	0	33	33	100	67	100
pCM	0.500	0.500	0.500	0.124	0.500	0.124
nL	18	18	18	18	18	18
L%	56	39	50	50	33	56
pL	0.407	0.240	0.593	0.593	0.119	0.407
nS6	11	11	11	11	11	11
S6%	73	36	27	100	55	91
pS6	0.111	0.273	0.114	0.001	0.500	0.008

Figure 5.48 Percentage agreement for each sample group: Resources available for learning

The module chairs significantly agreed that most resources listed were used and this was different to the opinions of the other three sample groups especially for items WebCT, skills lab and library. The lecturers on the other hand agreed minimally with most items. There was a 100% agreement by the module chairs that WebCT is used but a 100% non agreement by CRS managers.

The use of Microsoft Power Point© lecture notes and direct lecturer contact was scored significantly for the aggregate sample. These resources were also scored significantly in the student sample group. This was positive as direct contact with clinicians in small groups was listed as a preferred educational method in indicator 2.1. Stellmed was referred to as a resource also currently used by the programme. Skills lab and library however were not considered to be used.

"*More intensive practical training in the skills lab*" (S6-4) was listed in addition to the noted requests of students for more practical demonstration, which can be achieved in the skills lab, as noted under indicator 2.1. Half of the sixth year students found the skills lab to be a valuable resource through their student training but only six of the 37 third years volunteered this as useful. 14 third years noted that Web CT and internet were useful resources and 21 that reference textbooks could be useful as long as they were up to date and were not contradicted by lecture notes. Two sixth years volunteered that textbooks were not of any help. S3-24 said they don't use library material

"*probably because I don't know how to use the library*".

Eight third years and one sixth year found journal articles unhelpful, with one third year reporting the use thereof positively.

11 third years found narrative lecture notes to be of use and three six years indicated yes but two, no to the usefulness thereof. The theoretical notes provided in the Rehabilitation programme were considered

"*too broad and doesn't concentrate on specific conditions later in the course*" (S6-4).

Power point lecture notes were not seen as valuable with S3-37 commenting that they prefer using textbooks and notes taken in class. S6-1 noted that the power point lectures

were not really useful in the Rehabilitation programme. No other resources were listed that are currently used by the programme.

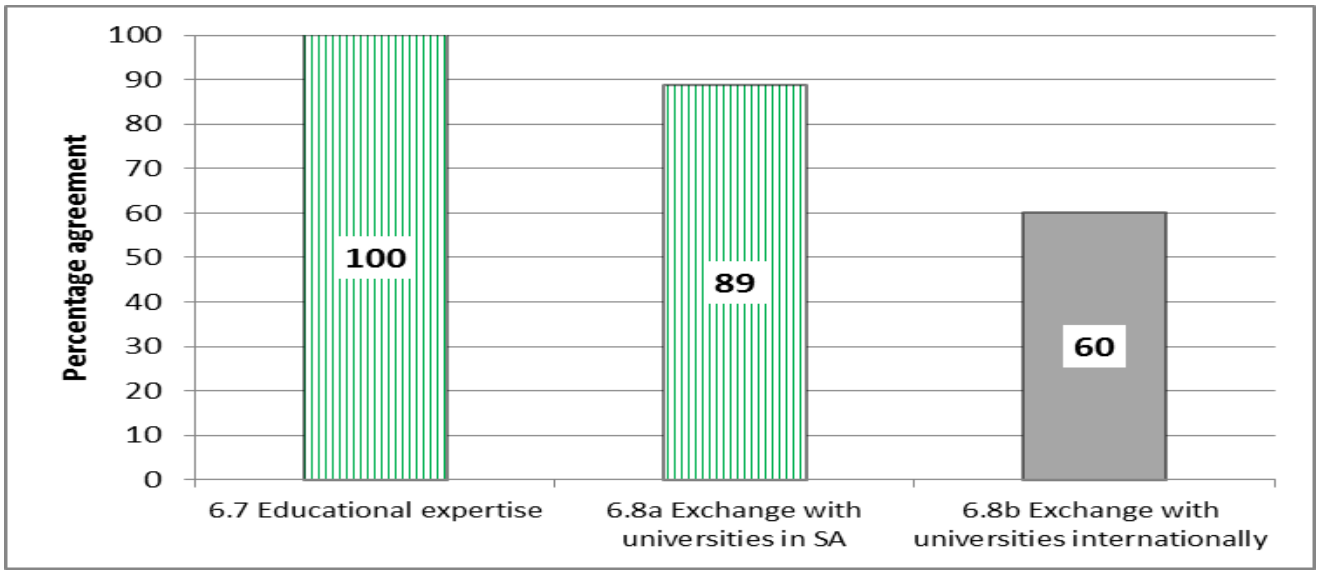
Single suggestions for additional resources that could be used were students having discussion groups with patients (L1), telemedicine (L13) and

"*conference facilities at various sites for interactive discussions while students are rotating*" (L4).

Indicator

- 6.7 There is access to educational expertise to develop the programme. Study participants were asked about their awareness of the US rehabilitation training programme and their own under graduate rehabilitation exposure.
- 6.8 There is exchange with local and international universities for the benefit of the programme.

Results



sample no	17 (MC, CM, L)	9 (CM, L)	5 (CM, L)
p	0.00	0.023	0.500

Figure 5.49: Percentage agreement: Resources available to develop the programme

There was significant agreement that the CRS has had access to educational expertise to develop the programme. While there was a significant agreement that there has been exchange with SA universities, this was not so on an international front.

The MBChB graduate respondents in this study hailed from the following institutions.

Table 5.2 Exposure of medical graduates in this study to undergraduate disability and rehabilitation training

University	MEDUNSA	Natal	UCT	Free State	Pretoria	US	Witwatersrand
Number of study participant graduating from each university	1	2	8	1	3	12	1
Number of study participants with exposure	0	0	1 (GP10)	0	0	5 (L4, L8, L14, L15, GP7, RD4)	0

One UCT graduate who qualified 30 years prior noted that they had had some informal exposure at Conradie Hospital during their training. Five US graduates recalled rehabilitation training with one graduating 17 years prior. Five US graduates who did not recall undergraduate rehabilitation training had qualified between 8 and 38 years prior.

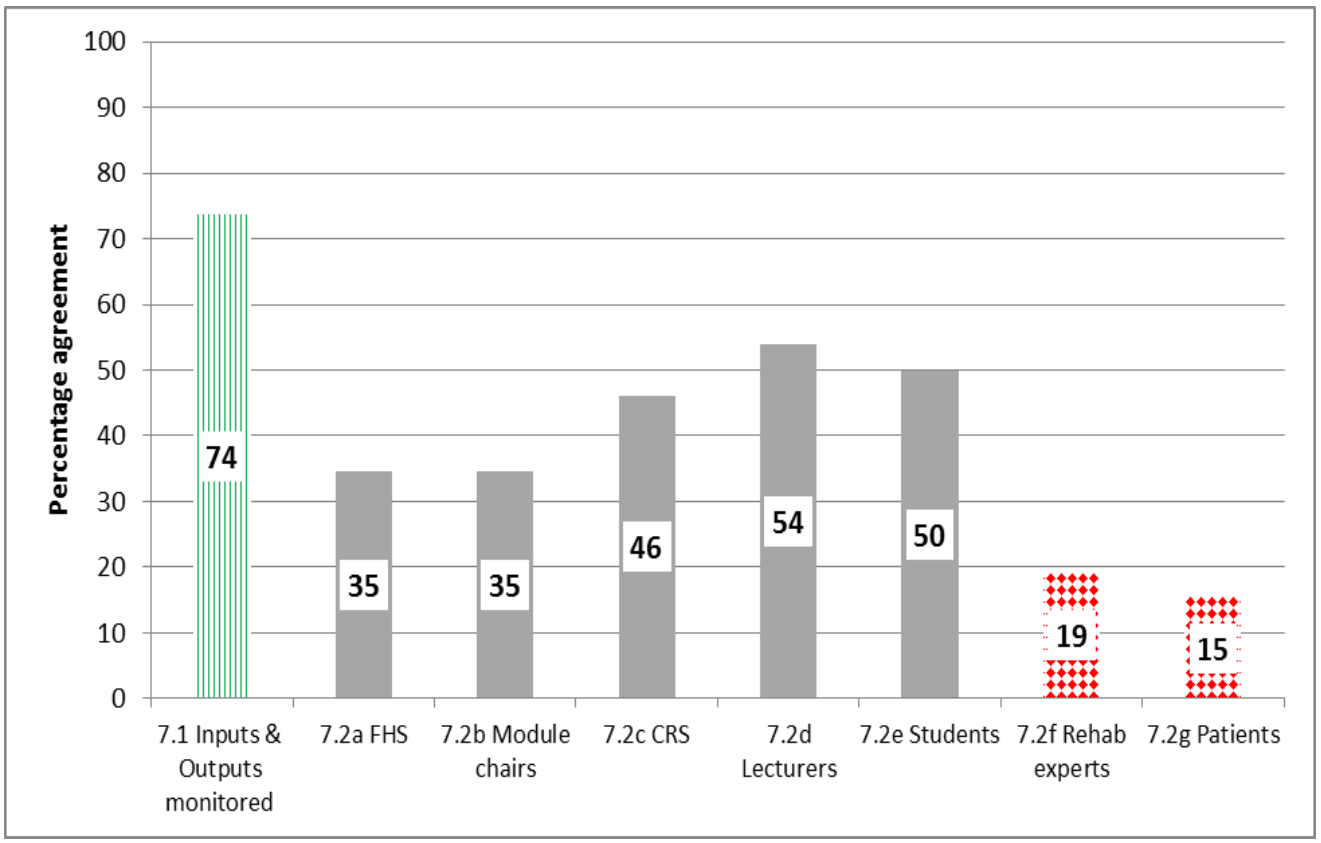
50% of the 36 professionals not involved with the US Rehabilitation programme and three of the 22 patients were aware of the programme. All participants were asked if they were aware of disability and rehabilitation training available at other universities. Three respondents in addition to the doctor in the table above noted that this is available at UCT. One person said the University of Natal offers rehabilitation training and two others answered yes but no details were provided.

5.2.7 Programme evaluation

Indicator

- 7.1 The inputs, processes, outputs (student results) and outcomes of the programme are monitored on an on-going basis.
- 7.2 All stake holders (faculty and departmental management, curriculum committees, programme co-ordinators, students, teachers, public, future employers, etc.) contribute to programme monitoring and evaluation. This includes input into objectives, delivery, content, assessment methods, student selection, staff selection and training, educational resources, evaluation of the programme, governance and administration and review of the programme. Respondents were also asked if other categories not listed currently contribute to the monitoring and evaluation of the programme.

Results



sample no	19 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)	26 (MC, CM, L)
p	0.033	0.085	0.085	0.422	0.422	0.578	0.002	0.000

Figure 5.50 Percentage agreement: Monitoring and evaluation of programme

There was significant agreement that the inputs (students and resources), processes (activities), outputs (student assessment results) and outcomes (achievement of objectives) of the programme is monitored on an on-going basis. However there was no support of who was providing this input against indicator 7.2. No other categories were listed as contributing to the programme. The Head of the CCE mentioned that the whole class completes questionnaires at the end of each theoretical module but that it is

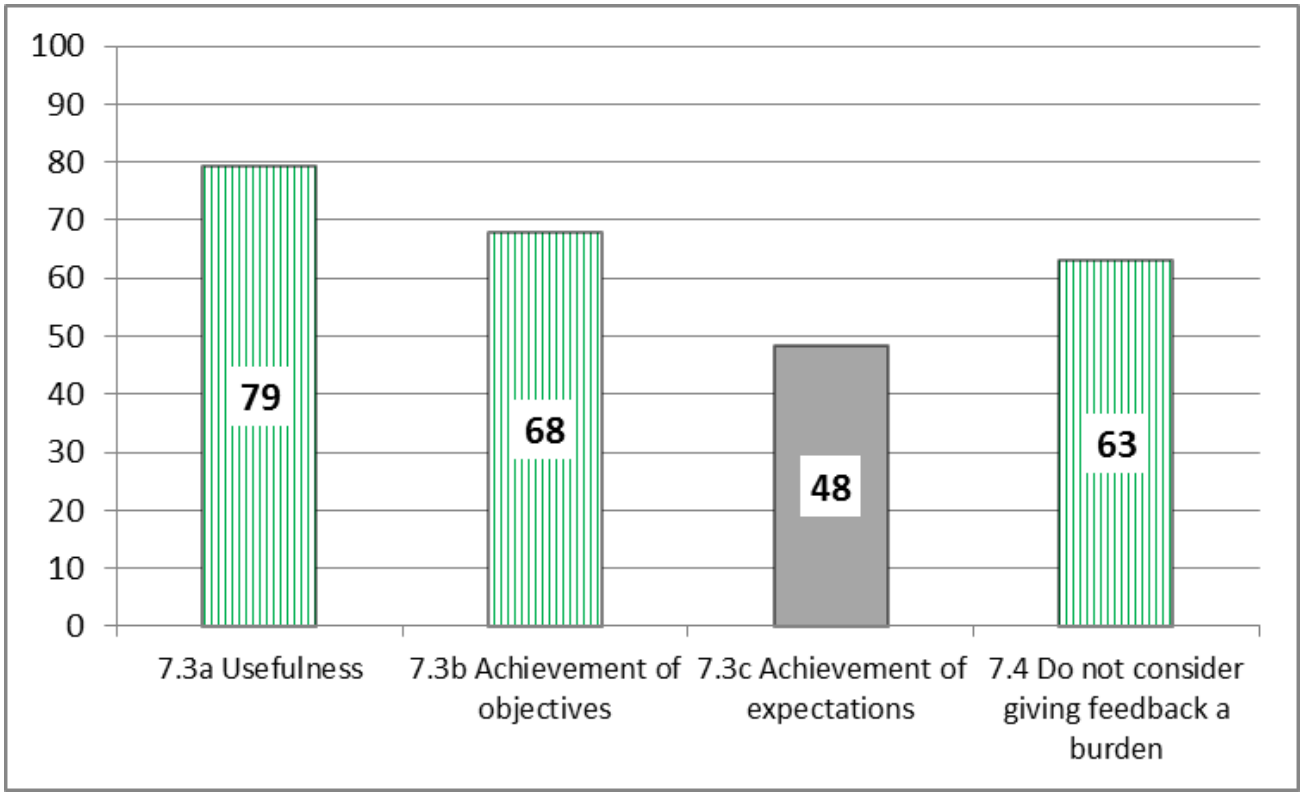
"*impossible to get the feedback immediately in the (*clinical*) rotations as students are across the place*". "*The majority of the questions are standard and generic that the university wants for each and every module and then there are programme specific questions and that went through a whole lot of iterations over the years and I think what we've got at the moment is satisfactory*"

There was significant disagreement that rehabilitation experts and patients contribute to programme evaluation.

Indicator

- 7.3 Students give feedback on the content, quantity and quality of teaching, the assessment methods used, sequencing of activities, resources used, usefulness, achievement of programme objectives and achievement of their own expectations of the programme.
- 7.4 Feedback does not overburden students.

Results



sample no	29 (MC, CM, L, S6)	28 (MC, CM, L, S6)	29 (MC, CM, L, S6)	57 (MC, CM, L, S3, S6)
p	0.001	0.044	0.500	0.032

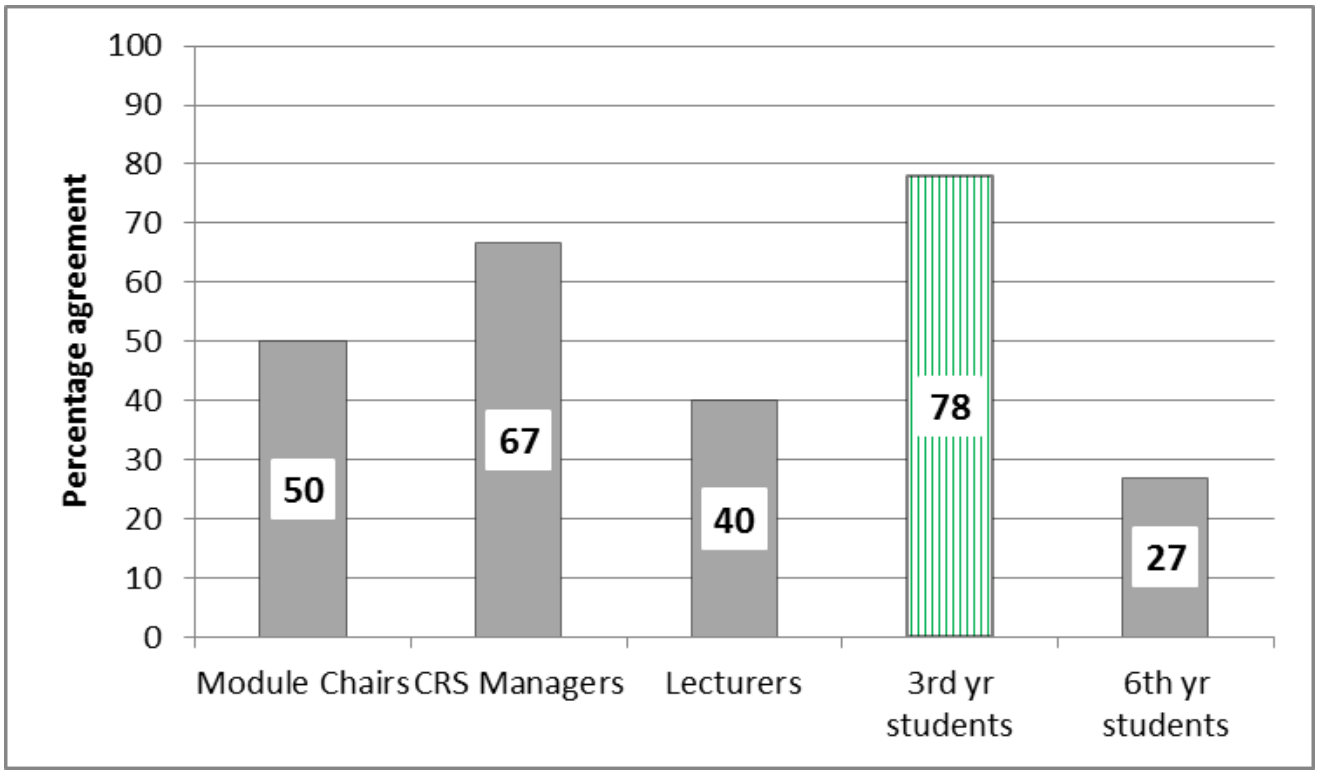
Figure 5.51 Percentage agreement: Programme feedback by students

The questionnaires did not specifically establish if students give feedback on content, quantity and quality of teaching, the assessment methods used, sequencing of activities, resources used, but the usefulness of the programme and achievement of student and programme objectives was asked. This study in itself fulfilled this criterion as students

were requested to provide feedback on these items in earlier indicators (except quantity was not investigated).

Although the results from indicator 7.2 showed an equivocal opinion that students provide input into monitoring the programme, there was significant agreement that students give feedback on the usefulness of the programme and achievement of the objectives set out for the programme. There was disagreement that students give feedback on achievement of their own expectations.

The chi-squared test for students considering giving feedback to be a burden showed significant relationship between responses and membership to sample groups (p=0.009). The results per sample group are presented below.



Sample no (n)	4	3	10	32	11
p	0.691	0.500	0.500	0.001	0.114

Figure 5.52 Percentage agreement for each sample group: Students do not consider giving feedback a burden

Only the third year students significantly agreed that giving feedback is not a burden whereas the sixth year students disagreed although insignificantly. As students with more

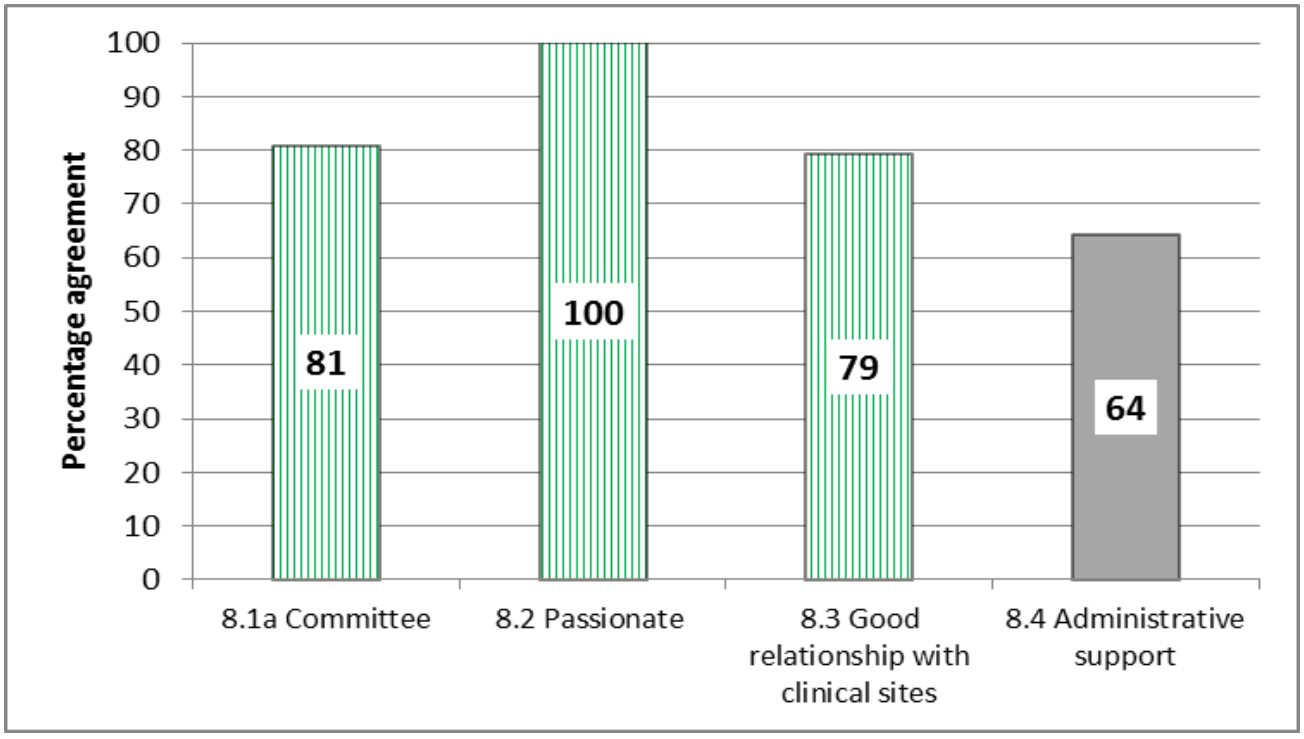
exposure (e.g. sixth years) would be able to give more feedback the opinion of the sixth years was recognised for this indicator.

5.2.8 Governance and administration

Indicator

- 8.1 The Rehabilitation programme is co-ordinated by a committee rather than an individual.
- 8.2 The co-ordinator(s) has (have) a passion for the programme and drive its delivery and development.
- 8.3 There is a good relationship between the department that delivers the programme and rehabilitation services and clinical sites where students are placed.
- 8.4 There is adequate administrative support.

Results



sample no	21 (MC, CM, L)	22 (MC, CM, L)	24 (MC, CM, L)	28 (MC, CM, L, S6)
p	0.004	0.00	0.004	0.093

Figure 5.53 Percentage agreement: Governance of the programme

There was significant opinion that the programme is co-ordinated by a committee and those responsible for the programme are passionate about it. There was a significantly

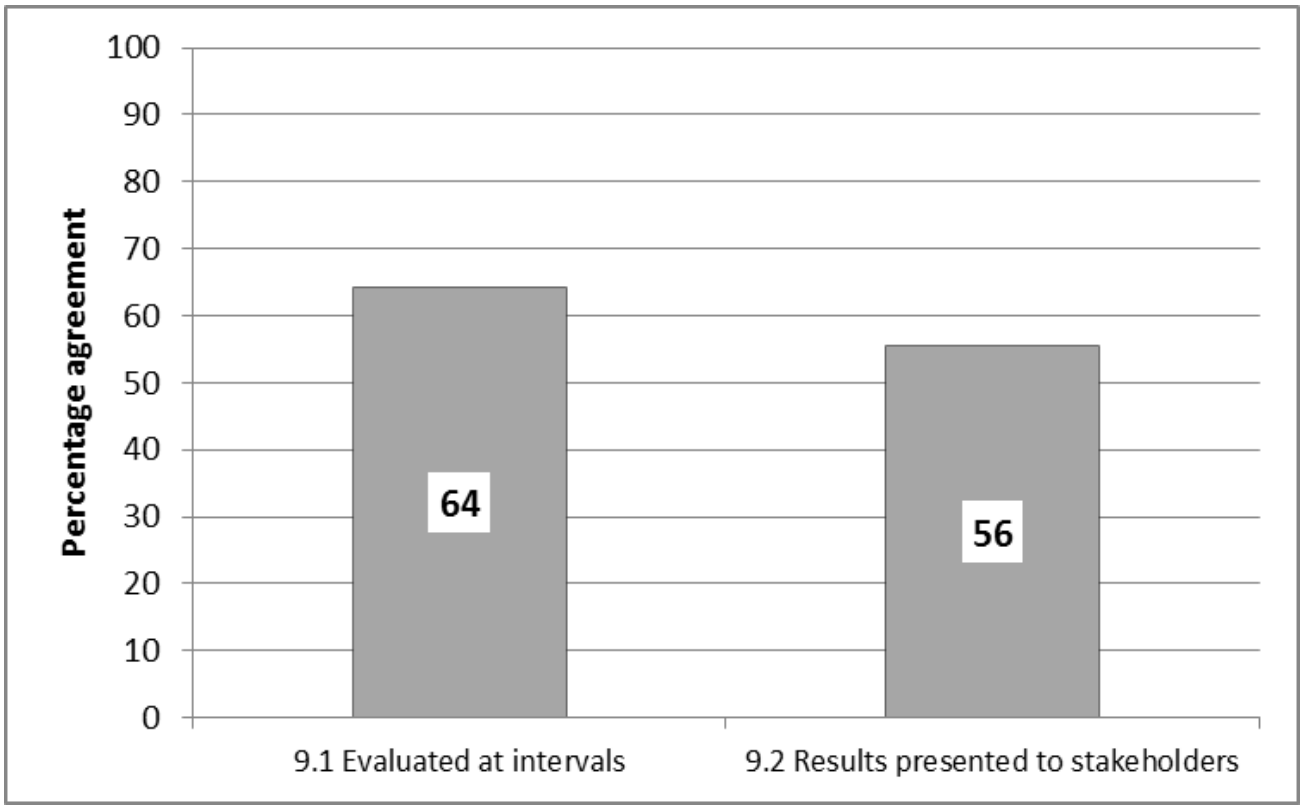
reported good relationship with clinical sites. Administrative support however did not carry significant agreement.

5.2.9 Continuous renewal

Indicator

- 9.1 The programme is evaluated at pre-determined intervals.
- 9.2 The results of these evaluations is presented to the stakeholders as a report and to decision making structures.

Results



sample no	14 (MC, CM, L)	9 (MC, CM, L)
p	0.211	0.500

Figure 5.54 Percentage agreement: Continuous renewal

There was insignificant agreement that the programme is evaluated at pre-determined intervals and that, should there be an evaluation, that the results are presented to decision making structures. The Head of the CCE note that the MBChB programme committee is made up of educational experts rather than the disciplines that make up the curriculum. The student body is also represented. He commented that it is not practical to have community representation e.g. future employers and patients, but these are represented on the University Council. Any changes in the curriculum eventually have to be passed via

the Council, so the community is indirectly included. Furthermore the HPCSA accredits the university at least every five years, but they only look at the major disciplines that students have to rotate through.

5.3 Chapter summary

The results in this chapter were presented in histograms and tables according to the 65 indicators divided into the nine areas as described in the methodology. Under each indicator quantitative and qualitative data together with the data obtained from documentation review was presented. Narrative provided by the respondents was summarised or quoted to support strengths and weaknesses of the programme as it was being delivered in 2011 and to capture suggestions for its improvement.

An in depth discussion of these results which lead to the conclusion regarding compliance of the programme are presented in the following chapter after which final recommendations for change to the programme, indicators and tools are made in the last chapter.

Chapter 6

Discussion and Conclusions

6.1 Introduction

In this chapter the results obtained in this study are discussed outlining the strengths and weaknesses, opportunities and threats (SWOT analysis) of the US, MBChB Rehabilitation programme as it was in effect in 2011, fulfilling objective 3 of this study. These are presented following the order of the indicators as in other self-studies using the WFME Global Standards for basic medical education (Hays & Baravilala, 2004; Khattab, Badrawi, Sheba, et al, 2004). A summary of the compliance with each indicator is provided in appendix 6b and a SWOT analysis summary provided in appendix 6c.

Literature explored after the development of the indicators and tools as well as the researcher's and expert opinion is included in this chapter. From this discussion, conclusions were drawn regarding the compliance of the programme with the indicators according to objective 4.

This fulfils the first part of the aim of this study to evaluate the Rehabilitation training programme of the MBChB curriculum of the CRS, FHS, US. The second part of the aim, to make suggestions for its improvement is discussed in the following chapter.

The chapter concludes with the shortcomings of the study.

6.2 SWOT analysis of the US, MBChB rehabilitation training programme

6.2.1 Mission and objectives (Indicators 1.1 – 1.4)

The Head of the CCE informed the researcher that the faculty vision as contained in Profile of the Stellenbosch Doctor had been updated in 2008. The revised version made provision for inter-professionality and was developed along the lines of international trends to develop exit outcomes such as in the BMCs *Tomorrow's Doctor* as has been referred to in chapter 2 (GMC website accessed 24/08/2007). After the data had been analysed a 2011 eleven page version of the Profile was revealed. This later document added depth to the 2008 version focussing on the competencies that the student should exhibit in order to match the profile.

The profile envisions that the graduate must have the knowledge, skills and attitudes to "*be able to function autonomously in the primary health care sector."* Amongst others, knowledge of prevention, rehabilitation, bio psychosocial factors, community influences, skills to function within and respect for the interdisciplinary team are listed as characteristics of the graduate. When the Rehabilitation programme was revised in 1999, firstly an overall outcome was set followed by outcomes for the individual phases. The aims and objectives for each phase as outlined in the introduction and detailed in the extracts from the 2010 study guides as they were provided to the sample participants (see appendices 2-5) are all geared to produce a doctor who can manage persons with disabilities within the primary health care setting. It stands to reason that there was an 88% significant agreement that the programme objectives align with the faculty vision.

According to the Head of the CRS (interview 06/06/2011), the centre's primary concern is for post graduate studies. There was however 100% agreement that the vision of the Centre which covers interdisciplinary service, advocacy, and collaboration with community partners and persons with disabilities, aligns with the undergraduate programme objectives.

There was significant agreement that the objectives and competencies were communicated to both the lecturers and the students. This was supported by the students being prepared for the educational methods and activities (indicator 2.2). Two mid phase facilitators however specifically commented that they were unsure as to their role in the programme with one stating that they did not know what the broader programme was about. There is direct communication between the CRS and the site co-ordinators but not with the facilitators. This shortcoming of the programme was addressed under the indicator 5.4 pertaining to staff training.

The programme was considered compliant with all four aspects relating to the mission and objectives.

6.2.2 Educational programme

The term educational programme covered the methods and activities used to deliver the programme as well as the content thereof. The former was largely guided by educational principles and the latter by the clinical context in which the programme is delivered.

6.2.2.1 Educational methods and activities (Indicator 2.1)

The programme used eight different educational activities but this was not a significant variety. Lectures by rehabilitation clinicians were said to be used with students commenting that these were useful in general as long as they were clinically applicable, interactive, properly outlined, with the use of pictures and videos and that lecturers should use their media appropriately. Mayer (2010) described how people learn, supporting the students' comments noting that visual and verbal input should be alternated, extraneous information should be eliminated, and essential information should be delivered in an appropriate manner. There was only a 45% agreement that staff involved with the programme were trained in educational principles, and amongst others, lecturing principles was listed as a training need for staff. This shortcoming is addressed under indicator 5.4 pertaining to staff training.

There was significant agreement that students learn from persons with disabilities during the programme and 34 students narrated the value they placed on learning from patients. This was supported by a significant agreement that students value teaching by persons with disabilities. Two sixth year students however asked for more patient variety and exposure and another two comments were made that the programme was too theoretical.

There was poor agreement that group projects (43%) and reflection on learning experiences (57%) were used but these were noted to occur in the early and late phase exposures respectively. This discrepancy may have been due to a misunderstanding of the question, failure of all students to participate in such activities, or a lack of respondents who were not directly involved in the activities and thus not being aware of the activities used. In considering the value of these activities, 20 students listed group projects and also presentations to the class as not being useful in general.

There was a significant 89% agreement that community resources were visited, these being WCRC, Bishop Lavis and Elangeni (Paarl). Students and lecturers however wrote that students would like to spend more time at WCRC to better understand the rehabilitation process. Other community resources used by rehabilitation professionals were NGO's such as APD, hospice and group homes e.g. Cheshire Homes and should be born in mind should further community resources be required.

The largest concern regarding learning activities was the lack of consistent demonstration of patient evaluation and examination (54%) and skills (49%) and use of the skills lab. This was evident from the results but also from discussions with various lecturers and facilitators involved with the programme. Participants suggested that skills such as wheelchair positioning, transfers, positioning in lying and amputation stump bandaging be taught. Although such skills were not noted in the literature reviewed regarding the training of PM&R specialists who would work in teams who would address these issues, this need was raised in this study by primary health care clinicians reflecting the role of GPs in managing persons with disabilities in the community as supported by Minihan, Robey, Long-Bellil, et al (2011).

Although simulation of a disability e.g. spending time and experiencing life in a wheelchair was used in a number of rehabilitation activities in the literature reviewed, it was viewed as a demeaning activity (Crotty, Finucane & Ahren 2000), was not supported in this study and was excluded from further consideration unless further evidence to the contrary is found.

Respondents were asked to add to the list of educational methods and activities if deemed incomplete. Two activities not suggested in the literature reviewed were that students should accompany a patient to the SASSA offices and that students should live with a person with a disability for a weekend were mentioned once each. These tied in with a strong need for understanding and effecting community integration as raised by GPs and persons with disabilities. Community integration was added to the list of problem areas against indicator 2.24. The specific examples were acknowledged for future reference.

An insignificant variety of educational methods were used with critical methods such as skills demonstration not being included. This indicator was thus non- compliant.

6.2.2.2 Communication of and sequencing of activities (Indicators 2.2 – 2.4)

Although there was not always direct contact between CRS staff and the students, the results of the study and the description of the educational activities showed compliance with the communication of activities. Students appeared to be adequately prepared for the activities (91%) and the study guides conveyed the relevant information (73%).

There was overall agreement (80%) that activities were sequenced from general to specific. The only criticism has come since the introduction of the Hermanus Inter

Professional Teaching and Learning (or 'Interprofessionele Leer en Onderig' in Afrikaans, IPLO) activity in January 2011. Data collection for this study commenced in March 2011 after the initiation of this project. IPLO initiated a pilot project at the Hermanus site with students using the ICF to do an in depth study of a single patient. In this activity the student has multiple contacts with a single patient and the treating team members over a two week period after which a comprehensive report is prepared and presented. The researcher and a contract CRS staff member have been involved as rehabilitation consultants to assess the students and to capacitate the site co-ordinator. This was not a rehabilitation initiative and comment has been made that although it is a thorough exercise in the application of the ICF it is heavily resource intensive. It has brought the focus of inter-disciplinary team work forward in the curriculum and involves student learning at a level which surpasses that of the Rehabilitation programme late phase activities. Although this new activity was to be rolled out to the other rural sites in the combined mid phase module, in a less intense format in 2012, it was decided, at the annual rehabilitation programme review meeting that this indicator was thus non-compliant and activities of the late phase would have to be revisited allowing for less teacher and more student directed learning. The importance of this was described by Cooke, Irby, Sullivan and Ludmerer (2006) and the emphasis of this in the indicator was reviewed.

Students have been exposed to the theory block and mid phase clinical rotation in different sequences. As all the students receive the theory block exposure together it was questioned if those students who have already had the mid phase exposure have an advantage over those who have not. An analysis of two sets of test and exam results revealed no significant difference between the two groups of students.

The two indicators regarding communication of activities were compliant however the one on sequencing of activities was not.

6.2.2.3 Community based learning (Indicators 2.5, 2.6)

Community placements have been used from the outset of the revised programme and this was recognised by the respondents (94%). Activities were not specifically designed to be community based but were formed due to other influences. Home visits in the early phase were initiated by the researcher (and then programme designer) from her own positive undergraduate learning experience. The rural clinical placements were largely orchestrated by the Family Physicians with rehabilitation creating activities accordingly.

Late phase clinical placements at Bishop Lavis were born out of the need to continue an exposure to the interdisciplinary team when the staff of the CCRD relocated to the WCRC. There was significant agreement that these placements did not burden (80%) and actually benefited (81%) the community resources. Bishop Lavis facilitators have frequently voiced the important role that the medical students play in the medical management of their patients as there are no doctors involved in their team.

The programme was thus compliant with the indicators pertaining to community based learning. The students and lecturers indicated a need for more exposure to the rehabilitation process and WCRC. Cognisance was taken of the need to balance exposure to residential, specialised and community rehabilitation resources.

6.2.2.4 Inter-professional learning (Indicators 2.7 – 2.11)

Of the nine questions regarding exposure to and attitudes towards inter-disciplinary team work there was significant agreement with seven of them. The programme offered exposure to team work, exploration of attitudes to team work, interpersonal communication was addressed and students interacted with other disciplines in the Rehabilitation programme and socially.

Although students considered rehabilitation doctors to contribute to the Rehabilitation programme (indicator 5.1) and they acknowledged the role of the GP in managing persons with disabilities (indicator 2.12), a shortcoming of the programme identified was that these doctors were not seen to function as part of the interdisciplinary team within the Rehabilitation programme. As this would be the focus of the mid and late phases, it was disconcerting that this response may have indicated that Family Physicians as site co-ordinators and medical officers working with them were not perceived to contribute to teams. Students however observed doctors functioning in teams during other programmes in the curriculum.

As inter-disciplinarity has become a focus point of the US with it being included in the 2007 version of the Profile of the Stellenbosch Doctor, IPLO, a dedicated inter-professional learning centre was created to facilitate inter disciplinary activities such as the ICF pilot project in Hermanus mentioned above. Logistical challenges raised while developing the Rehabilitation programme activities such as the availability of staff due to clinical commitments and leave, and co-ordinating student rosters to create inter disciplinary

learning opportunities were to be addressed by IPLO. The results in this study reflected that students did not significantly learn from other disciplines in the rest of the curriculum. As this was an insignificantly positive result (58%) opportunities may exist that could be identified and capitalised on. Apart from the Hermanus pilot project, IPLO aims to use the ICF as a vehicle to role out inter disciplinarity to all specialities, with Rheumatology being the second pilot. A lecture on the ICF has apparently been given to the second year medical students but to date the details thereof have not been made available. The sentiments of the CRS were however that the adoption of the ICF by IPLO should not negate the need of Rehabilitation as a speciality. The "*medicalization"* of the ICF should also be guarded against and the essence of the social model must not be lost (interview G Mji, 06/12/2011).

The researcher was concerned that medical students may have attitudes towards team members that would hinder learning. The results of this study supported the positive value that the students place on teaching by members of the team. Questions regarding attitudes may have had the potential of generating a positive result to please the researcher, but this question was posed to module chairs, CRS managers, lecturers of which 12 were non-MBChB qualified staff as well as the sixth year students. The responses were not associated with membership to a particular sample group. Interdisciplinary team work is integral to disability and rehabilitation and these results confirmed that exposure to the team can contribute to the programme.

The programme was thus compliant with four of the five indicators concerned with inter-professional learning.

6.2.2.5 Role of the GP in managing persons with disabilities. (Indicator 2.12)

Although students did not see doctors interacting with rehabilitation teams in the Rehabilitation programme, they did identify with the role that GPs have in managing persons with disabilities in the community. The role of the GP has been alluded to in the early phase and opportunities for observing this role have been available in the mid and late phases.

This indicator was validated by all professional groups supporting the statement that GPs did have this role to play. The WC Minister of Health (Botha, accessed 10/11/2011) distributed the 2020 Health care plan in November 2011 which, following on the 2010 plan,

describes a patient centred approach where primary health care teams are responsible for all the population within a geographical area true to traditional general family practice (WC Government, draft received 03/01/2012). Although the role of the GP in the primary health care team was not mentioned, the Worcester site facilitator has in response to this plan included students within these teams for the 2012 combined Rehabilitation, Family Medicine and Community Health rotations. This further supports the role of the GP in managing persons with disabilities as listed in the indicators.

Persons with disabilities in the study however did not significantly agree (59%) with this role and that this was limited by doctors' lack of knowledge, appropriate attitudes, and time they spend with a patient. Although it was considered that the programme could not influence the contact time between patient and clinician issue as it is a DoH issue, the programme does aim to provide students with the knowledge, skills and attitudes and some experience in managing persons with disabilities. Persons with disabilities supported the objectives of the US MBChB Rehabilitation programme

The programme was compliant with this indicator.

6.2.2.6 Management of persons with disabilities at all levels in the continuum of care. (Indicator 2.13)

The programme has taught students to manage persons with disabilities significantly at only one of the six levels of care offered in the questionnaire. This was at general community follow up and was largely attributable to the sharing of the rotations with Family Medicine and Community Health. Although community rehabilitation facilities have been used in the early and late phases, this was not recognised by the respondents (62%) and may have been due to the poor functioning of some of the activities. Specialised inpatient rehabilitation services were also insignificantly regarded as been utilised (65%) supporting the request for more exposure to the WCRC. Rehabilitation was not specifically taught in the acute, specialised tertiary and post-acute settings. The tools omitted to establish if teaching occurs in the public and private sector. According to the researcher's knowledge and the study guides the students have been only taught at public facilities and rehabilitation in private practice is referred to.

Restructuring in the health care system has been an ongoing process, but since developing the indicators which referred to the primary, secondary and tertiary

components of the health care system, this has been further refined with the establishment of the district health care system. Although the literature review acknowledged the ambulatory and district hospital components of primary health care, these were not well established at the time of drawing up the indicators and were thus not asked as separate categories. During data capture it was also realised that the questions did not follow the categories in the indicators. There was no dedicated question to establish if students were exposed to rehabilitation in chronic care. This term has since been better encompassed by the term de-hospitalised care which includes sub-acute, palliative and home-based care which has also become better established. The category of secondary hospital was not included in the questionnaires in this study and this should be rather included as the regional hospital.

The availability of specialised rehabilitation services as described in chapter 2 remains unchanged except for the temporary closure of the Elangeni Rehabilitation facility with services being rendered via the regional hospital. This has impacted on the delivery of the programme as this site is no longer available for clinical placements.

The programme was non compliant with this indicator. The indicator and corresponding questions should be revised.

6.2.2.7 Attitudes towards persons with disabilities (indicator 2.14)

Participants in this study significantly agreed (79%) that students had opportunities to reflect on their personal attitudes towards persons with disabilities, that they valued their teaching (90%) and that they came into contact with them be it personal or professional contact (81%). Third year students raised the need to be able to ask patients questions ranging from the physical, to the psychological and to social functioning of the patient reflecting an interest in wanting to holistically manage persons with disabilities. The researcher's WCRC colleagues however were concerned that these comments may suggest medical model or paternalistic intentions, and the development thereof should be guarded by the programme by using a patient centred approach. The researcher's experience has been that doctors may grapple with discussing basic functioning such as bladder, bowel management and sexuality. Students by acknowledging the difficult aspects of disability management showed enthusiasm to discuss these awkward yet essential topics with the patient.

A further impact on attitudes is the doctor's confidence in handling a patient whose disability limits ease of manipulation e.g. onto an examination couch, or positioning for examination. The teaching of these skills was raised as an additional educational method. Being able to communicate with a patient with communication problems was a skill also noted to effect attitudes towards such individuals. Communication was significantly highlighted by GPs as a problem they encounter in practice. Although interpersonal communication in the context of team work was assessed by the indicators and tools for this study, difficult communication with patients was not and should be added as a skill.

A rehabilitation doctor suggested that students should reflect on their own emotional state as dealing with disability results in dealing with loss and subsequent difficult behaviour in the patient and their family. The Rehabilitation Situations Inventory (RSI) is a scale used to measure the attitudes of medical professionals to persons with disabilities (Lam, Gunukula, McGuigan, et al, 2010). It explores

"*the specific behavioural situations rehabilitation professionals report as having the most difficulty in working with disabled individuals*".

the concept of which was considered when reviewing the programme activities.

The programme has used patient contacts for all the learning activities, but the researcher could not identify where opportunities for reflection on attitudes have been specifically provided. The emphasis of the early phase has been on the acknowledgement of the person with a disability as an individual with rights and responsibilities and this theme was pulled through all the rotations to ensure patient centred care is provided. The late phase has provided an opportunity for reflection but the focus was on team work rather than attitudes to patients. Students also complete feedback forms at the end of the rotations which may have triggered reflection on the learning experience.

Reflection on attitudes may well have occurred informally, but this single indicator was considered non-compliant until further evidence is obtained of its formal inclusion into the programme as an outcome or activity.

6.2.2.8 Horizontal integration of rehabilitation teaching (Indicators 2.15, 2.16)

Students were encouraged to and applied their rehabilitation learning to other specialities (82%) and were required to and applied learning from other specialities to rehabilitation tasks (94%). This approach was supported by the CRS but not formalised by other specialities.

When the new curriculum was implemented, the researcher was invited as a Rehabilitation expert to lecture during the third year Neurology theory block. This was an isolated opportunity for integration but lost momentum around 2007 for reasons unknown. This has not been followed up.

Although students have not been formally taught rehabilitation in secondary and tertiary hospital settings, formal integration has been considered by the RPC and the researcher as most of the undergraduate teaching occurs in these settings. It is here where rehabilitation may need to be initiated in the absence of Rehabilitation professionals, under the direction of the medical officer. Integration was encouraged by the Head of CCE, but stressed that the Rehabilitation Programme Committee would have to be responsible for its development. With integration the CRS, although perceived primarily as having post graduate functions, should not lose its authority as a specialist centre even for an undergraduate programme. CRS involvement should monitor the quality of rehabilitation learning in these integrated settings.

When exploring views on integration, 10% of the sample in this study felt that rehabilitation should be taught as a speciality only, 48% called for rehabilitation teaching only in other specialities and a further 33% suggested a combined approach. As discussed with the Head of CRS, this may have been a reflection of the "*medicalisation*" of the ICF within the FHS, US as well as the non-existence of rehabilitation as a speciality in SA. With integration of rehabilitation teaching, the social aspects of disability should not be lost. Lecturers and students need to be prepared for integrated activities, as called for in indicator 2.2.

The programme was considered compliant regarding integration of rehabilitation teaching across the curriculum although this is currently happening informally.

6.2.2.9 Application of general education principles (indicators 2.17 – 2.20)

There was significant agreement that students were responsible for their own learning (91%) and applied basic medical sciences to Rehabilitation learning (80%). In each of the phases students have been responsible for completing the assigned tasks which determine their assessment marks. In the early phase their peers evaluated their contribution to the group project. The late phase interdisciplinary activity has been less self initiated as the patient and interdisciplinary team interaction has been arranged for the students. This connected with the concern that this activity was not well aligned to an increasing cognitive demand of learning opportunities through the programme. In order to understand the health conditions and problems related to disability, it was essential for students to draw on their knowledge of basic sciences, such as anatomy, physiology, pathology and biochemistry.

The Head CCE highlighted the important balance between necessary repetition to reinforce learning, versus unnecessary duplication. Two questions showed a significant result that there was not repetition in the programme (93%) or in the curriculum (100%).

The researcher was aware of a handful of students who have completed electives at the WCRC in the past four years. Electives have however not been actively marketed as evident from the results and the interview with the Head CRS in this study. Although not a mandatory part of the programme, it may influence students in considering a career as a medical officer in rehabilitation. Such medical officers would assist in strengthening the speciality nature of Rehabilitation and possibly be available for student training and role modelling.

Three of the indicators were thus compliant in this theme with the fourth non-compliant indicator being relevant but not mandatory.

6.2.2.10 Content of the Rehabilitation programme (indicators 2.21 – 2.25)

Although the ICF has been presented in the early phase rotation from the outset, it has only been used more intensely as framework in the early and theory blocks in the past three years. The researcher having become more familiar with the ICF through this study has used it personally in the theory block in 2011 and since transferred this understanding to the RPC who has applied it in the early phase rotation and the mid phase module chair who has applied it to the mid and late phase sessions in Worcester. The FHS has

introduced the ICF in Hermanus mid phase in 2011. It is thus understandable that there was insignificant agreement (64%) that the ICF has been used to teach disability and rehabilitation in the programme. At the WCRC an outcomes based approach is used which has also been combined with the ICF to provide a two dimensional approach to holistic patient care which has also been used for teaching. The retention of these concepts in the indicators is thus supported.

Eight of the eleven health conditions listed and 15 of the 21 problems that persons with disabilities experience were significantly considered to be taught. As the clinical rehabilitation sites used focus on physical rehabilitation it was understandable that psychiatric, intellectual and visual impairment were not considered significantly to be taught in the current programme. This exclusion also applied to the theory block where the former two were not included in the programme. 'Soft psychiatry' as managed by the occupational therapists and social workers may have been touched on as part of stroke or head injury management, but did not receive specific attention. The 2010 theory study guide lists hearing impairment as the topic of one lecture, and a speaker with visual impairment has been involved in the two blocks delivered in 2011. Sexual dysfunction and dietary needs were problems considered not to have been addressed. A lecture is offered on the former in the theory block and is included in the notes. Dieticians provide input at various places in the curriculum and are readily available at the day hospitals; however they have not been specifically drawn into the Rehabilitation programme and are not always considered first line team members. Mobility, cognition/perception and coming to terms with disability were three further areas directly relating to the disciplines of physio, occupational therapy and social work, which were also evaluated as being poorly addressed. These aspects have been included formally in the theory block and students have opportunities during all three phases to approach team members, where they have been available, to discuss these problems should they be present in their case studies.

With students seeing patients in the rural areas away from the direct supervision of the CRS, many other health conditions have also been included e.g. mono-neuropathies, tendon injuries etc. Together with the researcher's experience in DG assessment, the need for an unrestricted list of health conditions was acknowledged by the study participants. Any patient is considered suitable as a case study as long as there is disability as determined by the ICF. The problem list has thus also been aligned with the ICF and is taught in this format.

The lists of health conditions and bio psychosocial problems in the indicators followed the notes used in the Rehabilitation programme as was established from the preceding US programme, the researcher's experience, supplemented by team member colleagues and confirmed by the literature review in this study. As this literature was from specialised rehabilitation sources it was understandable that the rehabilitation professionals in this study significantly supported the lists for health conditions (84-100%) and bio psychosocial problems (74-100%). Association of health conditions with rehabilitation has stemmed from the lack of services being available for patients with these conditions (such as spinal cord afflictions) within general medical care (RD3).

These health conditions and problems were however not confirmed by community counterparts. Persons with disabilities agreed only that SCI (73%) were seen in the community and GPs only that stroke (90%), head injury (80%) and psychiatric conditions (100%) were seen. According to the provided problem list persons with disabilities agreed only that four of these (school and work needs (77%), coming to term with a disability (77%), patient/carer education (86%) and transport and community access (82%)) were problems seen in the community. GPs significantly supported only pain (90%) and communication (90%) as problems seen in their practices. This supported the difference in patients' and GPs expectations of doctors discussed in chapter 2.

The discrepancy between rehabilitation professionals and GPs could be understood as the former operate on a referral base, but may also mean that patients referred from specialised rehabilitation services are not seeing the GPs and not integrating into the community where they should be seen. This discrepancy was of importance to the development of the programme as the community forms the base of much of the teaching platform for rehabilitation and reflects what students will have to deal with when placed in the community once qualified.

According to community based respondents, the lists were also found to be incomplete with the addition of degenerative neurological conditions, hearing impairment, HIV and TB, cancer, musculo-skeletal and soft tissue disorders and chronic conditions e.g. diabetes, cardiac failure and COPD. In addition, a variety of diagnoses were offered within the provided and additionally established categories. The theme of community integration was however not well established in the original problem list and was added.

The appropriateness of these lists of health conditions and problems as supported by the literature and rehabilitation professionals could however not be concluded in this study and should be explored further within the SA community context.

None of the articles found during the literature search describing university rehabilitation activities committed themselves to a list of health conditions of problems. A later article however described a medical undergraduate programme at the Buffalo School of Medicine and Biomedical Sciences (Symons, McGuigan & Akl, 2009). This programme offers repeat rehabilitation exposures over the four years of the curriculum and lists familiarity with "*primary disabling conditions and their associated medical conditions*" as a knowledge component but did not include the psychosocial aspects of disability. A further article by Minihan, Robey, Long-Bellil, et al (2011) in describing desired knowledge, skills and attitudinal outcomes required in an American post graduate Family Medicine training programme also did not list specific health conditions or problems or even educational methods.

There was agreement that the students in the US Rehabilitation programme were taught to embrace their role in the medical management and to facilitate holistic management through referral to team members and community resources (81-94% agreement). The results showed that students were taught by members of the interdisciplinary team (69%) as occurs in the theory block and by contact mainly with social workers in the early phase. The deficiency in other phases may have been due to the paucity of available staff especially in the rural areas and of students from other disciplines' availability for interdisciplinary discussions in the late phase. Where team members were not available it is expected that students acquire trans-disciplinary skills as suggested by the respondents (e.g. wheelchair handling and amputation stump bandaging).

The extensive list of health conditions and problems listed supported the discussion of the definition of disability and rehabilitation in chapter 2. To attempt to teach disability and rehabilitation within the confines of a rehabilitation programme is thus not possible and supports a vertical and horizontal integration approach across the MBChB curriculum as called for in the indicators. Horizontal integration across the levels of health care has been discussed against indicator 2.13 and across specialities of the curriculum against indicators 2.15 and 2.16. Vertical integration refers to first teaching a generic approach

such as the ICF on which problem lists as offered in the questionnaire can be linked. Students then need to be taught how to, and have the ability to, apply general principles to specific health conditions as encountered in other speciality rotations. A self-directed, problem based learning approach trains students to repeat the process when faced with other health conditions to which they have not had specific exposure (Michel, Huber, Cruz-Jentoft, et al, 2008) at various stages through the curriculum. Wijnen, ten Carte, Van Der Schaaf and Borleffs (2010) described how this vertical integration then prepares graduates for future practice. There was significant agreement that a generic approach was taught (97%) and its use was supported by the study respondents.

The programme was thus compliant in four of the five areas related to the content of the programme with two of these needing further evaluation.

6.2.3 Assessment of students

6.2.3.1 Application of general assessment principles (indicators 3.1, 3.2, 3.4, 3.5, 3.6, 3.8, 3.9)

The methods used for student assessment were considered to be valid (79%), reliable (89%) and feasible (79%), with the use of global rating scales (88%). The assignment and marking schedules followed the objectives for the clinical rotations and the theory test and exams have been set according to the outcomes for each lecture. The OSCE which tests the integration of all knowledge, attitudes and skills after exposure to all rehabilitation learning opportunities however, has tested skills in the past which have not been uniformly taught to all the students. Most of the assessments have been conducted by single individuals limiting inter-examiner variability. The use of marking schedules has facilitated intra-examiner reliability. Global rating scales have been used for all assessments.

The participants agreed (75%) that standardised patients were used in the OSCE. This was however not true as the use of any patients has proved far too challenging to organise. Photographs of patients and case studies have been used. This discrepancy may be due to the respondents (module chairs, CRS managers, lecturers, sixth year students) not knowing what a standardised patient was, as the researcher did not know before this study. This question needed to be revised with the definition of a standardised patient included such as: a professional or lay person with or with out a health condition trained to depict a heath condition or problem in a standardised way (Long-Bellil, Robey,

Graham, et al, 2011). Alternatively respondents knowing what a standardised patient was may have been referring to their use within the combined OSCE by Family Medicine.

Patients have not been used to formally assess students' attitudes, but the students were under the perception that they did and that their attitudes were monitored during the rotation. This may have been due to the patients involved in the early phase signing off an attendance form for each of the group members when doing their home visit. In course assessment of attitudes was not considered to be happening and was also not supported as valuable by the students. This indicator (with two parts) was not compliant and will remain unchanged as this is still a standard to aspire towards.

The module chairs, CRS managers and lecturer sample groups were of the opinion that understanding rather than recall has been assessed, but the students felt very differently about the issue. This may have been due to the testing of theory in the theory block which could not be avoided. Theory exams asked theoretical as well as case based questions. The researcher has been very conscious to keep training appropriate for students that are going to be future doctors, and to provide them with information that they will need and can use in their future practice. This indicator was thus considered compliant that understanding rather than recall was assessed.

At the beginning of the early phase rotation students received a brief overview of the four year Rehabilitation programme. Pre exposure test of knowledge and expectations have however not been conducted. There was appropriate poor agreement that pre and post exposure assessments were conducted. Although pre and post exposure assessment was reported in a number of international articles, this was not noted in SA based literature. For the sake of upholding standards, this indicator remains unchanged. Due to the limited contact time with the students this may well not be feasible, but an exploration into the third years' expectations of the programme, similar to what has been done in this study, may provide on-going relevant insights to the programme co-ordinators as part of programme evaluation as included in indicator 7.3.

There was agreement that the pass requirements were communicated to the students (90%) and these were laid out in the study guides for each rotation. What was concerning however was that from the narrative students sometimes did not take rehabilitation practice seriously especially if the allocation of marks as within the curriculum is

proportionally low. Some students saw rehabilitation as a fun rather than an essential part of the curriculum. The allocation of marks has been previously raised within the combined modules but is unlikely to change while rehabilitation is not a recognised speciality.

The programme was thus considered to be compliant with five of the seven assessment educational principles with the non-compliant two not being feasible for implementation currently.

6.2.3.2 Assessment methods (indicator 3.3, 3.7)

The results of the study reflected the use of two main methods of assessment namely: presentations and portfolio written submissions, in the clinical rotations. Students over the years have complained of the time that it takes to write up portfolios and this method was reported 15 times by the third years not to be useful. Presentations were supported as a used assessment method (73%) but, the value of this was questioned by the students.

There was significant disagreement that the two written methods (essay on theory and essay on case study) which have been used in the theory block were used. This discrepancy may have been due to respondents focussing on the shortcomings of the clinical assessment methods and that many of the lecture sample group were not involved in the theory block and those that were, were not involved in the assessment process. MCQs have also been included in the theory exam and this was supported by all sample groups except the lectures. This was understandable as although the lecturers have provided questions for the theory exam, they have not been involved in the compilation of the exam itself.

The use of orals was not uniformly supported. 100% of the sixth years replied that orals on theory were used and this may be reference to the OSCE which was erroneously excluded from the list. The lecturers however agreed only 28% that orals on theory were used, but they have not been involved with the OSCE. Formal orals were however not utilised by the programme other than the OSCE and there was uniform poor agreement that orals on case studies were used (33-60%).

Although the option of in course assessment of attitudes was offered this was reported to be insignificantly used and not considered to be valuable by students. There is no formal

evidence to suggest that student attitudes are assessed in the programme. Enrolled students felt that they preferred individual patient presentations rather than group projects.

The lecturers (92%) supported the notion that feedback was given to the students at the end of the rotation as has been provided for in the early and mid phase. The students however felt that they did not get feedback (20%) and this may reflect that the extent of feedback in the early and mid phase has been inadequate or due to the lack of feedback on the assignments handed in for marking and not returned in the late phase and theory block.

A major downfall of the programme was thus the lack of formative in-course observation, assessment of practical skills and feedback to the students during and after the rotation. This can be resource intensive but is possible if conducted over the course of the exposure. Opportunities for formative feedback have not been provided for in the programme due to the limited contact time with CRS staff and placement in distant sites. The involvement of Family Physician site co-ordinators and use of therapists and other team members as facilitators in the mid phase can be further investigated as they have been involved in the delivery of the programme.

The list of assessment methods in the indicators were gained form the literature. A module chair suggested an additional assessment method not found in the initial literature search, the mini-CEX. This method allows for students to be assessed in various clinical settings with a diverse set of patient problems (Norcini, Blank, Arnold & Kimball, 1995; Nair, Alexander, McGrath, et al, 2008). Kogan, Holmboe and Hauer (2009) evaluated 65 tools for direct observation and assessment and found the mini-CEX to show the strongest validity and has been used for under and post graduate students and across multiple disciplines. This could be used to assess skills as well as provide formative feedback and is added to the student assessment methods. The Direct Observation of Clinical Skills (DOCS) was described in the literature (Kang, Bardes, Gerber & Storey-Johnson, 2009) but was not included in changes to the indicator regarding student assessment methods as it was similar to the mini-CEX volunteered by a stakeholder. In course assessment of skills as described by Burch, Seggie and Gary (2006) can additionally be considered for feedback.

Both third and sixth year students were asked what assessment methods they found the most and least valuable. In line with the holistic and serial learning styles (Higgins, Reading & Taylor, 1996) presented in the literature review, certain individual students favoured oral assessments where others found written assessments more valuable. This preference may even change over the course of their curriculum training (Gurpinar, Bati & Tetik, 2011) and it is thus important to provide a range of educational methods, activities and assessment methods so all students have equal opportunities to learn and perform.

Al Kadri (2009) stated that "*there are no inherently good or bad assessment methods, they are all relative. What matters is that the assessment programme should be an integral part of the curriculum*"

This refers to a matching of teaching and assessment i.e. validity as listed in the indicators. They also referred to tracking student results over time to further validate assessment methods or as the IIME notes (website accessed 05/11/2009), to evaluate curricula and this is discussed in the indicators in area 7 pertaining to programme evaluation.

The two indicators regarding assessment methods and student feedback were thus both non-compliant.

6.2.4 Students

6.2.4.1 Student enrolment (indicators 4.1, 4.2)

The Head CCE explained that there is no active recruitment of students with disabilities, but they will not be discouraged as long as it is deemed that the students will be able to complete the course. Only one out of the 48 students included in this study declared having a disability. There was 71% agreement that there have been students with disabilities enrolled in the MBChB programme. In contrast to the literature where therapeutic students with disabilities were well described, in this study there was only a 56% agreement that medical students come into contact with students of other disciplines with disabilities. The presence of students with disabilities and their influence on attitudes of students to persons with disabilities may be greater with the presence of obvious physical disabilities (Minihan, Bradshaw, Long, et al, 2004), but subtle disabilities also need to be considered for inclusion and accommodated (MacDougal, 2009).

The US FHS's approach mirrors that of medical school policies internationally (Association of American Medical Colleges (AAMC) website accessed 15/10/2011). The AAMC however was criticised for setting entrance criteria that would discriminate against enrolment of students with disabilities (De Lisa and Thomas, 2005) especially in the light of modern technology which can be used to reasonably accommodate students with disabilities. At the US, the Centre for Student Counselling and Development offers support for students with special learning needs. This includes staff and student support to accommodate "*physical, sensory, mental, health or learning impairment*" (US website accessed 21/11/2009).

The researcher out of interest questioned if, as in practitioners from rural origin returning to rural practice, if physicians with disabilities would prefer to follow a career in disability and rehabilitation. There was only a 44% agreement with this idea from the respondents in this study. Further review of the literature revealed a limited number of articles describing graduates with disabilities who have specialised in PM&R (Villarosa, 2003). These doctors recall their own experiences of the health system and feel that this contributed to their empathy and competence in managing any patient and not just those with disabilities.

The researcher was curious as to the presence of doctors with disabilities in practice which would be secondary to their inclusion as students or could be due to subsequent acquisition of disability. Only 24% of the persons with disabilities reported having met a doctor with a disability. Although there was no evidence found at the time of literature review, further articles support this situation in the British context (Mercer, 1998; Chambers, MacDonald & Mercer, 2002) with de Lisa and Thomas (2005) reporting a 2-10% estimate of physicians with disabilities in North America. Mercer together with Pinder (2000) highlighted the link between the enrolment of students and integration of practitioners with disabilities and recognition of disability studies as a core subject, stating:

"*With one in four of us (in the United Kingdom) either having a disability or caring with someone with a disability, the topic can hardly be described as peripheral to doctor's training needs*"

One of the two indicators regarding student enrolment was non-compliant and both were beyond the control of the programme.

6.2.4.2 Student satisfaction (indicators 4.3, 4.4)

There was satisfaction with the lecturers as clinicians but not with them as lecturers. This was supported by the need for training of lecturers in educational principles as will be discussed in the following section. The teaching sites were considered in a poor light. As the number and quality of sites was considered adequate in indicator 6.1 and the teaching activities were reflected as adequate, this may have been a reflection of the quality of the teaching, the number of staff as will be discussed in area 6, or the type of site as respondents have asked for more exposure to WCRC. Teaching sites as have been discussed were not optimal for the early and late phase activities and in the mid phase facilitation of activities were seconded to the rural sites. Whereas the CHC and rural sites were determined by Family Medicine, the choice of rehabilitation sites is limited. All three components (activities, staff and sites) need to be considered together to optimise learning opportunities.

These two indicators were non-compliant but were possibly related to other indicators which were within the influence of the CRS.

6.2.5 Academic staff

6.2.5.1 Academic staff involved in the programme (indicator 5.1)

The results confirmed that all disciplines involved in rehabilitation teams listed in the questionnaires were involved with the programme. As described this was most prominent and controlled in the theory block and occurred as members were available in the clinical sites.

The paucity of clinical psychologists and rehabilitation nurses involved in the programme was echoed in these professions opinions that they are often excluded from interdisciplinary teams and their deficiency in clinical practice both of which are beyond the control of the programme. Dieticians are readily available at the CHCs and contribute at other points of the theory block, but were not actively included in the programme. The exception was where the researcher has noticed the participation of the dietician in interdisciplinary ward rounds in Worcester, which the mid and late phase students have also attended.

The researcher was concerned that rehabilitation doctor role models were lacking in the programme with the researcher being the only one integrally involved with the programme,

with two doctors from WCRC giving one lecture each in the theory block. There was 68% agreement that rehabilitation doctors contributed to the programme. Exposure to rehabilitation doctors is important for role modelling and recognition of Rehabilitation as a career choice even if there are no specialisation opportunities in this field.

Respondents listed the COSMO and the HBC as additional contributors to the programme, and the prosthetist (or rather the MOP), wound care sister and religious ministers and politicians as members of the health care team.

HBC are mentioned as an essential part of the primary health care teams in the 2010 health care plan. HBC within the primary health care teams can however not replace rehabilitation professionals in the community and this was raised with the National Minister of Health at the South African Committee of Health Sciences Deans' conference (attended 11/08/2011). Although the MOPs contribute to the management of the patients at WCRC and were originally included in the theory block lectures, they were never considered as contributory team members when developing the indicators. There were 380 MOPs registered with HPCSA in 2010 (HPCSA website accessed 28/12/2011) and 279 MOPs listed on the MEDPages website (MEDPages website accessed 28/12/2011).

Further literature search did not make reference to the wound care sister or the MOPs but in the context of the programme should be added to the team members in the indicators. A category for non-medical collaboration could be considered as an adjuvant to the team. Sample participants as supported by the White Book on Physical and Rehabilitation Medicine (Guttenbrunner, Ward & Chamberlain, 2007) suggested that medical specialists should also be considered as members of the rehabilitation team albeit on an individual patient basis. The role of specialists in outreach to district hospitals was also mentioned in the 2020 plan (Botha, accessed 10/11/2011). These too were added to the list of team members.

This indicator was thus compliant but could be improved on.

6.2.5.2 Academic reward, training and feedback (indicator 5.2 – 5.5)

There was general agreement that staff were rewarded through professional stimulation. The lecturers significantly disagreed that they were rewarded financially or through academic stimulation. Financial reward may not have been relevant for all staff and the

Head CRS was confident that financial rewards were made where due. Those not paid, may have been considered to be providing the service as part of their full time occupation e.g. with DoH or US. Academic benefits such as CPD points, involvement in conferences and workshops, inclusion in the broader academic environment, access to the library were not used but were suggested as worthy rewards. On discussion with the Head CRS, these options are possible but need to be motivated for and followed up. Staff requested that their contribution to the programme be acknowledged by their employers or recognised by the DoH through the SPMS, as can be achieved through letters of gratification. Time and personal expenses incurred as a result of involvement in the programme was seen as equivocal (52% agreement). These two indicators complemented each other and as there was not agreement with the statement that academic staff were not burdened, compliance regarding rewards was considered to be globally non-compliant.

Apart from financial reward, training opportunities can also be seen as a means of compensation as they improve staff's confidence, performance and thus job satisfaction (Sarikaya, Kalaca, Yegen and Cali, 2010). Training of lecturers, site co-ordinators, facilitators and assessors has been raised as a concern for a number of years and was reflected in the results of this study. Accordingly requests for training in educational principles such as facilitation of interdisciplinary teaching and learning, facilitation of small groups, a short course in clinical supervision, lecturing skills, reflection and assessment were suggested. The US has resources and existing programmes into which academic staff can be slotted or experts who can organise training specific for those involved in the programme. As the respondents were also involved in the Family Medicine and Community Health learning activities, training could be organised in conjunction with these divisions. On discussion with the Head of the CRS, specific needs need to be identified after which training can be organised. What was not expected was the uncertainty of facilitators as to their role in the programme and need for a comprehensive understanding of the whole programme. This has been discussed with the RPC who has identified the need to make regular contact with the sites involved in the programme. With the envisioned role out of the Hermanus model to the other rural sites in 2012, this contact is going to be even more important.

As all components of indicator 5.4 pertaining to training were mandatory, non-compliance of the first area renders the whole indicator non-compliant.

This was linked to the staff feeling that they did not get feedback when students were evaluated by other assessors, such as in the mid phase. Although the marks that the students scored have always been made available, a summary of the students' performance according to the marking schedule has also been provided since 2009. With the planned mid phase changes the staff at the sites would be required to also conduct assessments of the rehabilitation tasks. The opinion that staff feel burdened by the programme, may have been a reflection of the lack of reward and feedback.

Student results may reflect lecturer efficiency. Quantitative and qualitative student feedback (Van Wyk and McLean, 2007) as well as lecturer self reflection (Stalmeijer, Dolmans, Wolfhagen, et al, 2010) were feedback methods suggested in the review of further literature. Kruidering-Hall, O'Sullivan and Chou (2009) went on to describe a programme whereby they taught students how to give lecturers constructive feedback. These methods of feedback were noted to complement the indicators and were considered for programme review.

Despite the staff being seen as proficient clinicians with appropriate attitudes there were a few needs expressed for disability and rehabilitation specific training. As the experts in rehabilitation the CRS is well equipped to manage these requests.

The programme was non-compliant regarding these four staff areas

6.2.6 Educational resources

6.2.6.1 General aspects pertaining to resources (indicators 6.1, 6.2, 6.3, 6.5, 6.6)

There was significant agreement that the CRS had adequate number and quality of teaching sites but not staff. According to the RPC and the researcher's observation there has been just enough staff to address the programme. The students' dissatisfaction with the sites previously noted to be possibly due to the training of staff may also have been influenced by this state of staffing resources. The CRS and students had access to the library and equipment for the programme, the library not being highly favoured.

It was felt that staff and finances of the CRS have not been split proportionately between the activities of the Centre. The Head of the CRS explained her perception that the post graduate functions of the Centre takes precedence and this would explain this perceived imbalance. The Head CRS confirmed that the Rehabilitation programme has a dedicated

budget. This indicator was considered to be compliant but the programme critically needs the support of the Centre and the Head of the CRS. This commitment was assured during the interview on the 06/12/2011.

Microsoft Power Point© presentations and direct contact with lecturers were seen as resources used by the students, probably reflecting on the theory block. Many of the lecturers did not agree with this but the sample also included those that were involved with the clinical rotations. Students noted direct contact with lecturers to be a valuable resource, but not the Microsoft Power Point© notes. They found narrative notes or notes they made in class to be of more help. Despite being provided with a set of notes in the early and mid phase only 55% of the students acknowledged their availability as a resource in the Rehabilitation programme. Those that did acknowledge the notes regarded them as helpful but one student felt they were too broad. These notes written in 2001 and some of which were revised in 2007, need to be revisited as to their accuracy and relevance.

The students however indicated that Web CT was an available resource for the programme (73%). This has not been officially used by the RPC, but the researcher is aware that this is used by Family Medicine in the combined clinical modules and may account for these results. The skills lab which is available as a resource was not utilised by the programme according to the results of the study, but was considered in the light of including skills training in the programme as mentioned under the programme activities. The opinion was that resources were not available for self-directed learning and no others resources were suggested to be currently in use, or that could be used,

Further literature review introduced specific IT resources such as IPod and social web applications (Hansen, Oosthuizen, Windsor, et al, 2011) through to the art of reflection on patient care (Chretien, Goldman & Faselis, 2008; Wald, Reis, 2010). Reflection on learning was listed as an educational method rather than a resource in the questionnaires. Other than one reference to the use of telemedicine no other IT mediated activities were suggested by the respondents.

The programme was thus compliant with three of the five general indicators pertaining to resources.

6.2.6.2 Patients as a resource (indicator 6.4)

There was significant agreement that patients were involved in the programme. There was agreement that they were involved as case subjects but not as experts. This was mirrored by the patients in this study many of whom were aware of the programme, who were prepared to be case subjects but not as experts. In order for a patient to see themselves as an expert appropriate training needs to be conducted. Internationally standardised patients are used, but this involves intensive training and often professionals within the faculty are used for this purpose (Jain, Nadler, Eyles, et al, 1997; Minihan, Bradshaw, Long, et al (2004). In the WC the WCRC together with a NGO, Motivation, has embarked on a peer training programme. On discussion with one of the organisers, this training which prepares patients to be advocates for the purpose of other patients can be considered to develop a patient as an expert and thus considered as a resource for the Rehabilitation programme. These patients would not be specifically trained for the benefit of students and thus will not be able to assess student attitudes. From the researcher's experience professionals with disabilities have been involved with the programme in previous years as lecturers but not as standardised patients.

The attitude of students toward learning from patients was questioned during the initial literature review. The current study showed a significant 90% agreement that students value teaching by patients. Although this may have been biased by students wanting to give the correct answer, this agreement was also based on perceptions of CRS managers and lecturers. In addition this learning method was supported by 34 third year students who said they learnt the most from patients with two specifically mentioning patients testifying regarding their health condition as being valuable.

The programme was compliant with this indicator but it needs further attention.

6.2.6.3 Educational expertise and exchange with other universities (indicators 6.7, 6.8)

There was agreement that the programme had access to educational expertise and exchange with universities in SA. Educational experts from the CTL were involved in the initial design of the combined programme and a staff member was available as a co-supervisor for this study. The staff at the CRS has had regular contact with other universities for the benefit of their post graduate programmes. The RPC and researcher

however have not had any direct contact or input into the under graduate programme from other SA universities. The same applies to contact with international universities.

Where the indicator called for collaboration with other universities, this could be considered beneficial to both the US programme and the development of rehabilitation programmes at other universities. This would benefit the ability of doctors across SA to manage the needs of persons with disabilities and the possible development of Rehabilitation as a specialty. Rehabilitation doctors when contacted to participate in this study were very interested in the US programme as they also considered it a stepping stone to the recognition and even specialisation of Rehabilitation in SA. Of note is that there was also no literature regarding the undergraduate Rehabilitation programme of the FHS, US despite the revised programme being in existence for 11 years and thus a need for such publication.

During the time of data collection the researcher had been newly involved in an exposure for the third year UCT medical students at WCRC as part of their clinical skills training. The ICF was suggested as a model and the aim of the exposure is for the students to understand the impact of disability on an individual's life as well as ones personal social accountability. On further enquiry (Weiss, 2011, 27 Oct, e-mail), these students also receive lectures and a group activity (simulation of a disability) in their first year Primary Health Care programme which focuses on human rights and impact of disability on an individual.

In a further search of the literature Amosun, a physiotherapist at UCT together with Taukobong (2010) evaluated disability and rehabilitation learning opportunities at UCT and the University of Limpopo in 2007 and 2008. Although 90% of the participants had exposure to persons with disabilities, this was isolated and opportunistic in the various specialities. There was no disability and rehabilitation programme and there were no clear objectives for these exposures. They found that only the medical aspects received attention and recommended that a multidisciplinary module be integrated into the undergraduate programmes of all the specialities.

As the researcher would like to see rehabilitation being taught to all medical students in SA, a question was included in the current study to establish exposure of medical graduate participants to rehabilitation in their undergraduate programmes. Of the eight medical

schools in SA, (Wikipedia website accessed 26/11/2011) only UNITRA (which is now part of MEDUNSA) was not represented by the sample participants. The participants had graduated a mean of 19 years prior to this study (range 7-38 years). One UCT graduate who had graduated 30 years prior recalled undergraduate rehabilitation exposure and five of the 12 Stellenbosch graduates recalled exposure with the longest period since graduation being 17 years prior. However five US graduates that did not recall undergraduate rehabilitation training had qualified between 8 and 38 years prior. The researcher is aware that all US undergraduate students at least since 1987 would have had rehabilitation exposure in either their fifth year as part of the pre-revised programme or as part of the revised programme which has been running since 2001. The recall of the participants should they have had rehabilitation training at other universities could thus not be considered reliable.

From these two sources (the literature and this study) it however appeared that rehabilitation training may not be offered at all the medical schools in SA and this should be further interrogated once the credibility of the current US programme has been established.

No equivalent undergraduate medical rehabilitation training programmes were found in the international literature as supported by Haig, Im, Adewole, et al (2009). It was thus gratifying to resource the single article (Symons, McGuigan & Akl, 2009) after data collection that described repeated exposures to disability training over a four year medical programme at the Buffalo School of Medicine and Biomedical Sciences. A later American article (Minihan, Robey, Long-Bellil, et al, 2011) described desired knowledge, skills and attitudinal outcomes required in a post graduate GP training programme. Although designed for post graduate study, this content was deemed relevant to the SA context where the six year MBChB curriculum is geared towards general practice and could be considered when reviewing the specific content of the US training programme. Neither article however contributed further to the indicators.

The programme was thus compliant with these two indicators.

6.2.7 Programme evaluation (indicators 7.1 – 7.4)

In this study there was agreement that the inputs, processes, outputs and outcomes of the programme were monitored but none of the groups as offered or any other were identified as providing feedback. The programme was thus reviewed by methods other than stakeholder input and may have been a reflection of this study being the first of its kind.

The researcher is aware that the Rehabilitation Programme Committee as well as the module chairs review the programme at least annually. The fact that lecturers, as stakeholders, have not been involved in this annual review was reflected in their insignificant 64% agreement that the programme as been reviewed at regular intervals. The lecturers however would have been made aware of changes made to the programme if it affected the specific outcomes and activities that they were involved in.

Students in their third year felt that giving feedback was not a burden (78%), but this was completely different for the sixth year students (30% agreement). Ranasinghe, Wickramasinghe, Wickramasinghe, et al (2011) suggested that this may be influenced by the length of the questionnaire which in this study was quite lengthy for the sixth year students. In conjunction with this the sixth year students were not easy to contact and responded poorly to invitations to participate in this study. The Head CEE's support of obtaining feedback at the end of a module which is practical when all students are together was noted for further monitoring and evaluation of the programme. The feedback forms used at the end of the modules have however been extremely limited but could be adapted to provide meaningful feedback on a greater diversity of areas as contained in the set of indicators but should be without making feedback to lengthy.

International articles discussed pre and post exposure assessment of knowledge and attitudes (Sabharwal & Fiedler, 2003; McFadyen, Webster & Maclaren, 2006) and suggested that students should give feedback on their expectations of the exposure (McEwen, Harris, Schmid, et al 2009). Neither of these was conducted in the current programme. There did not appear to be any opportunity to give feedback on achievement of objectives according to the activities in the study guides, but there was significant agreement (68%) in this study that there was. Marking schedules for all assessments were provided in the study guides and were aligned with the objectives as confirmed by indicator 3.1. Study participants may have considered student assessments to be giving feedback on achievement of objectives.

The CCE Head commented that it was not practical to obtain input from stakeholders such as patients and future employers for programme change, but they are represented on the University Council through which curricular changes have to be passed. There was no reference to inclusion of persons with disabilities on the Council. As suggested in chapter 2, changes within the programme fall within the jurisdiction of the department running the programme. The FHS Curriculum Committee's primary concern is that the overall curriculum complies with HPCSA accreditation requirements. It is thus unlikely that changes to a minor contributor to the curriculum such as Rehabilitation would come to the attention of these council members and hence the value of the diverse study participants in the current study in the development of the Rehabilitation programme.

The results of student assessments were not tracked and followed to assess the development of individual students or the programme. This was evident in the inaccessibility of such results from the CRS.

The Rehabilitation programme was compliant with two indicators and non-compliant with the further two indicators in this area.

6.2.8 Governance and administration (indicators 8.1 -8.4)

The programme is managed by the RPC who maintains contact with the Head CRS, researcher, module chairs, lecturers and others directly involved with the programme. This was reported by study participants as co-ordination of the programme by a committee which was viewed to be 100% passionate about the programme.

There was a good relationship with clinical sites. This was important as the CRS unlike the specialities in the FHS does not have an affiliated clinical component. The Bishop Lavis and Elangeni ambulatory sites and the WCRC are specialised rehabilitation facilities, however any CHC, or facility where team members manage persons with disabilities (e.g. schools) could be considered. This would be of note for the exploration of use of electives.

The administrative support has been another area of concern as reflected in the score of 64%. As the CRS perceives itself to be predominantly a post graduate centre the services of the single secretarial post, which has not been optimally filled, was limited. Support for the printing and distribution of notes has been minimally provided to date but co-ordination

of student rosters and results have been handled by Family Medicine who has a dedicated undergraduate secretary. The RPC personally takes responsibility for related administration.

This area was compliant against three of the four indicators.

6.2.9 Continuous renewal (indicators 9.1, 9.2)

As this was a first study of its kind it can be understood that the programme was non-compliant against the two indicators in this area namely; that the programme was evaluated at intervals and that the results were presented to stakeholders. It was anticipated that the methods and tools devised and used in this study would pave the way to achieve better compliance in this area in the future.

6.3 Compliance of the Rehabilitation programme against the indicators identified for this study

The results obtained in this study have been discussed with the RPC at the year-end programme meeting (11/11/2011) and with the third year facilitators (25/11/2011) as well as the Head of the CRS (06/06/2011). These have been presented here from which the researcher has drawn conclusions regarding the compliance of the programme with each indicator.

Compliance with each indicator as a whole was determined by the interpretation of significantly positive quantitative results that were supported by narrative responses and data from other sources as has been discussed. In this way the programme has been found to be compliant with 40 of the 65 indicators. Of the 25 non-compliant indicators three (4.3, 4.4 and 5.3) were possibly influenced by non compliance in other areas. A further two non-compliant indicators were beyond the control of the programme (2.20 and 4.2). Although compliant, four indicators required further attention. A summary of the compliance of the programme with the indicators is contained in appendix 6.

The programme was mostly compliant with the first area of mission and objectives and the second regarding the educational programme. This was expected in line with the development of the programme as guided by educational experts against the Profile of the Stellenbosch Doctor. The current programme has, as with many rehabilitation training activities and related programmes reported on in chapter 2, focussed on the content and

delivery of the programme, with less attention being paid to student assessment. This was in contrast to the medical educational literature which describes both of these extensively and but also resources and staff but to a lesser extent. The latter two areas also performed poorly in this study. As can be expected the areas pertaining to monitoring and evaluation showed poor compliance supporting the initial need for this study. The percentage agreement with each area is shown in the following figure.

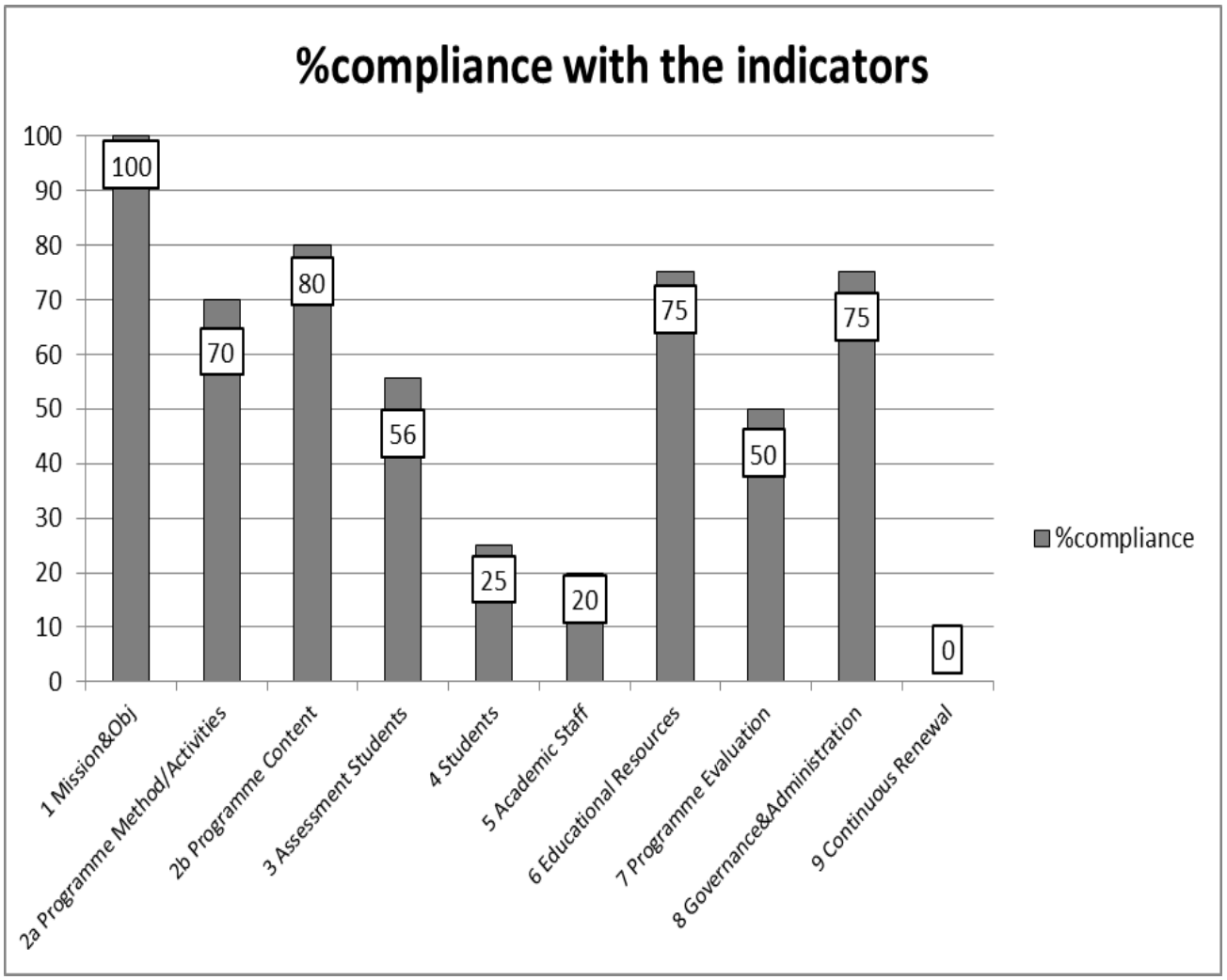


Figure 6.1 Percentage compliance of each area of the MBChB Rehabilitation Programme with the indicators.

From the discussion in this chapter conclusions regarding compliance have been made. Those that require attention are presented in the following section. Recommendations for addressing these deficiencies are covered in the following chapter.

6.3.1 Mission and Objectives

The programme was compliant with all aspects relating to the mission and objectives.

6.3.2 Educational programme

Under the educational programme, the following were concerns.

- A greater variety of at least two more educational methods should be used. More exposure to WCRC and patient contact was suggested.
- There was a need to consistently demonstrate practical skills such as wheelchair positioning, transfers, position in lying and stump bandaging. The literature suggested students should be skilled in communicating with patients with communication problems.
- Students did not see doctors functioning as part of rehabilitation teams in the Rehabilitation programme. This applied to the rehabilitation doctors throughout the programme as well as the Family Physicians involved in the mid phase as site co-ordinators and clinicians. This was a mandatory requirement. The programme complied with all the other mandatory items regarding interdisciplinary learning.
- The programme did not teach students to manage persons with disabilities at all levels within the continuum of health care or in the private sector.
- With the introduction of the Hermanus ICF based mid phase rotation, the programme no longer required increasing cognitive input from these students through the rehabilitation exposures. This would carry greater relevance in 2012 when this model is rolled out to the other mid phase rural sites. This aspect was not stressed in the original list of indicators, but will be added to the one relating to the sequencing of activities.
- The definition of disability and rehabilitation was not consistently taught in the context of the ICF.

Although the following were compliant suggestions for improvement were as follows:

- There was agreement that students reflected on their attitudes to persons with disabilities. Although indirectly referred to this was not evident as a specific outcome or learning activity in the study guides.
- There was good compliance with the list of health conditions and problems as verified by rehabilitation professionals. The lists were expanded by complementary and supplementary conditions. There was however poor agreement that the lists provided represent what GPs and persons with disabilities observe in the community.
- Integration across the curriculum is already in effect but should be formalised and expanded on if possible.

- Electives were not offered. Although not considered to be a mandatory indicator, it was included as it may influence students in considering a career as a medical officer in Rehabilitation.

6.3.3 Assessment of students

Students favoured oral testing of theoretical or clinical knowledge and in course assessment of practical skills over portfolios and presentations, the latter two being the currently used methods for the programme. The results from the study however showed the methods being used in the programme to be valid, reliable and feasible. The conclusions were then that

- Presentations did not always allow students to learn from other groups
- Although there was agreement that standardised patients were used in the OSCE and assess attitudes, there was no evidence of this in the study guides, from the researcher's experience or discussions with the RPC. A definition of a standardised patient should be included in the questionnaires.
- The students were of the opinion that recall rather than understanding was assessed.
- Students received no feedback during or at the end of the rotations.
- Pre and post exposure assessments of knowledge, skills and attitudes as well as expectations were not conducted. The former two were considered valuable but not feasible, but students' pre exposure expectations could be evaluated.

6.3.4 Students

The students' poor satisfaction with the programme was reflected in the above conclusions. The opinion that students were not satisfied with the lecturers is addressed under the area pertaining to academic staff.

6.3.5 Academic staff

Staff matters that need to be attended to were:

- Although there was good representation of team members, the paucity of clinical psychology and rehabilitation nursing was evident. This links to their deficiency in clinical practice which is beyond the influence of the CRS.
- Academic rewards and recognition was poor. It appeared that financial reward was given where relevant.

- Lecturers, site co-ordinators, facilitators and assessors lacked training in educational principles, and orientation to the MBChB Rehabilitation programme. Training in rehabilitation concepts was suggested.
- Lecturers lacked feedback on their performance and that of their students.
- The opinion that staff felt burdened by involvement in the programme may be improved by addressing the above.

6.3.6 Educational resources

The development or access to the following resources could be considered to improve the programme:

- The inadequate quality of staff and funding were a reflection of the opinion that the undergraduate programme does not receive adequate attention from the CRS.
- Patients were not trained as experts in disability and rehabilitation and could not be used to assess students' attitudes towards persons with disabilities. Training of standardised patients is resource intensive.
- Students considered the skills lab to be a valuable resource and this was not used by the Rehabilitation programme. Certain skills listed above have been identified that need to be taught consistently to the whole student class.
- The narrative lecture notes were considered too broad and not specific enough and the Microsoft Power Point© notes in the theory block were not considered helpful. Students also noted Web CT to be useful and this could be used for notes and self-directed learning.

6.3.7 Programme evaluation

This study has gained important contributions from various stakeholders into the undergraduate programme as has not been previously obtained. Short comings of the feedback system, which was limited to routine student feedback at the end of the rotation, were:

- Although third year students did not consider giving feedback to be a burden this was not true of the sixth years. It was also a challenge to obtain feedback after the students had completed the rotation.
- Student results were not readily available or tracked as a student progresses across the programme

6.3.8 Governance and administration

The programme lacked administrative support which was reflective of the occupancy of the administrative post at the CRS and the support of the CRS for the programme.

6.3.9 Continuous renewal

This study has been an initial evaluation of the Rehabilitation programme and there were thus no prior evaluations, which could have been presented to stakeholders.

6.4 Shortcomings of the study

6.4.1 Shortcomings of population definition and sample selection

Bias introduced due to these shortcomings has been discussed under the methodology. In identifying populations, the team member population was difficult to define.

The decision to use samples of convenience for some of the populations, which by quantitative research standards was of small size, was made on practical, financial and time considerations. In the broader perspective of the study, where 165 sample participants from ten populations were contacted at least once and in some cases up to five times to complete questionnaires, the researcher decided to gain a diverse stakeholder input rather than a detailed opinion of fewer populations. Information gained from indirect stakeholders was of crucial value in verifying the indicators for the US Rehabilitation programme and for its potential distribution to other universities in SA. This in itself was seen as a unique aspect of this study. The researcher was concerned about the small sixth year student sample size, however the whole of this population identified for this study has had an opportunity to provide feedback on the Rehabilitation programme at the end of each of their modules which was included indirectly in this study.

6.4.2 Short comings of the indicators

The indicators have provided a comprehensive framework for the evaluation of the Rehabilitation programme. No additional themes were added during the study or further literature review which included a model for the evaluation of a Psychiatry module at the FHS, US (Snyman, 2011) and the AAMC's Graduation Questionnaire (Jalili, 2008; AAMC website, accessed 15/10/2011; e-mail correspondence with Mr D Matthew (17/10/2011). There was no indication for the removal of any of the indicators. Six of the indicators required revision of wording and content as will be discussed in the following chapter.

There has been limited input from educational experts into this study. The indicators could have been further validated and enriched by contribution of educational experts especially those outside the FHS.

6.4.3 Shortcomings of the tools

Validity and reliability of the study has been discussed in the methodology.

The interviewing schedules proved to be adequate for this study.

Where changes in the wording of the indicators was recommended these will be carried through to the relevant questionnaires.

During the data capturing and analysis it was found that one omission from the questionnaires had been made namely the option of OSCE was left out for assessment techniques. Where categorical options were offered, the option of 'none of the above' or 'not applicable' should also have been offered. The term 'standardised patients' was used, but may have been misunderstood. This term should be explained to sample participants who may not be familiar with this expression.

One tool was designed for the whole sample group including lecturers, site co-ordinators, facilitators and assessors. Not all questions were relevant to all participants in this group the option of 'not applicable' was well used to overcome this potential shortcoming. This method avoided the creation of multiple sub sample groups, which would have occurred if different questionnaires had been designed for each. It however made the questionnaire unnecessary long for participants such as the theory block lecturers, for whom only a part of the questionnaire was relative. The same shortcoming applied to the questionnaire for the module chairs. Where most of the questionnaire was relevant to four of the chairs, this was not so for the theory module chair. These shortcomings were not revealed during the peer evaluation of the questionnaires.

6.4.4 Shortcomings on the administration of the tools

Although a tedious and repetitive process, telephonically contacting potential participants before sending out questionnaires benefitted the response rate. The sixth year medical students proved to be the most challenging and it is suggested that feedback from the

students for ongoing monitoring or repeat evaluations be obtained during clinical contact time.

The researcher's involvement in the administration of the questionnaires to sample of persons with disabilities was a concern as it could have been a potential source of bias. The researcher was satisfied that the questions were asked according the questionnaire which was used as an interview schedule and there was no need to further explain any of the questions. During the first interview the researcher decided to ask the participants in which area they resided when asking the question regarding health conditions and problems observed in their community. This information was not asked of the GPs who were asked a similar question, and was thus not analysed. The need for this information in future tools will be considered.

6.5 Chapter summary

In this chapter the results obtained form the analysis of the quantitative and qualitative data as well as student results have been discussed according to the 65 indicators in the nine areas as developed for this study. The US MBChB Rehabilitation programme as delivered in 2010 was found compliant with 40 of the 65 indicators. Of the 25 non-compliant indicators three were possibly influenced by non compliance in other areas and two non-compliant indicators were and remain beyond the control of the programme. Four compliant indicators require further attention.

Based on this discussion of the results and conclusions regarding the compliance of the programme with the indicators, recommendations for improvement to the programme and the indicators are made in the following chapter.

Chapter 7
Recommendations

7.1 Introduction

In this chapter recommendations are made for improvement to the programme, fulfilling objective 5. The tools used in this study are reviewed and recommendations for monitoring and evaluation of the US, MBChB Rehabilitation programme are made fulfilling objective 6.

In this way the aim of this study to evaluate the Rehabilitation training programme of the MBChB curriculum of the US and to make suggestions for its improvement, is achieved.

7.2 Recommendations for the design of an improved, cost effective MBChB Rehabilitation programme to the CRS, FHS, US

Conclusions of this study as presented here have been discussed with the Head of the CRS and the RPC. As the results of this study were made available at the end of 2011 at the time of annual review of the Rehabilitation programme, it was an ideal opportunity to implement the recommendations at the beginning of 2012. Resources were thus concentrated on the implementation of changes to the clinical modules, with a plan to review the theory block in the second semester.

7.2.1 The revised MBChB Rehabilitation programme of the CRS, FHS, US

In considering improvements to the programme, aspects that were compliant as they were being delivered in 2011 were acknowledged and retained. Where compliance was poor or room for improvement to the programme was identified, recommendations were made to change the programme, only if these were considered feasible. The recommendations for the improved MBChB Rehabilitation programme were as follows:

7.2.1.1 Early phase rotation

As lecturers and students have requested more exposure to the WCRC to learn more about the rehabilitation process and the RPC reports challenges in co-ordinating patients for the early phase from the Bishop Lavis site, the early phase introduction will be held at the WCRC site from January 2012. The practical arrangements of the changes to the early phase were fully discussed with the WCRC social workers who are largely involved with

the implementation of this phase. A description of the whole MBChB rehabilitation programme, an introduction to the ICF with application to a video case study, will be given as has been done in the past. While on the WCRC site three new activities will be introduced. Firstly the role of rehabilitation in the various health care settings in the continuity of care will be outlined. Their role as doctor in each of these settings will be emphasised.

Secondly the students will have an opportunity to informally interview a person with a disability. The individual identified to facilitate the session has extensive experience as a motivational speaker to other patients, professional and lay persons. Although this session has been planned as an open session for questions and answers, guidelines will be given so that all students have similar learning experiences as is described with standardised patients. The purpose of the activity is to provide an opportunity for students to discuss a variety of issues with a patient, from the straight forward to the more awkward questions, to challenge students about how they feel when discussing these issues and how this affects their attitudes to persons with disabilities. This will also provide an additional patient contact during the programme.

The third additional activity will be a formal tour of the WCRC showing how the rehabilitation process in an inpatient setting works. They will observe and speak to team members treating patients and have an opportunity to view equipment and assistive devices.

All patients for the home visit will be provided by WCRC. As with the current programme, after conducting the home visit, students will discuss the cases with the relevant WCRC team members. According to the indicators, this opportunity should be utilised by facilitators to provide feedback to students on their patient assessment and to guide the students with their presentations at the end of the rotation. The final session will be restructured so that the class will be split in half, with two instead of one assessor, with the health conditions of the cases being spread over the two groups to provide diversity. This is to provide a better opportunity for students to learn from other case presentations. The marking schedule has been revised to follow the outcomes more closely and the focus will be on the understanding of the components of the ICF in relation to a particular patient. Students are not expected to recall facts that they have learnt in the module.

7.2.1.2 Skills laboratory exercise

The deficiency in skills training was identified as a problem at the beginning of this study, the specific needs being identified during data analysis. Before data collection, Family Medicine had donated time in the MBChB III year to the Rehabilitation programme. On discussion with the RPC, it was decided that this donated time be used to address this gap and specific outcomes were set to cover patient transfer to and from the wheelchair, positioning for examination and basic wheelchair assessment. Theory covering the consequences of poor positioning will also be provided. These skills will then be subject to assessment in the OSCE.

7.2.1.3 Mid phase rotation

A shortcoming of the mid phase rotation in the programme identified in this study was that some facilitators were unsure as to their role in the programme. There was also limited contact between these facilitators and the CRS staff. The researcher was informed that as of 2012 the Hermanus model would be implemented at all rural sites, with the ICF being used as a framework for patient management. The Rehabilitation programme will thus be even further delivered by the rural site co-ordinators and facilitators. It had however been planned that the CRS staff would be involved at the rural sites to facilitate application of the ICF, and it was recommended that this opportunity be used to improve communication between the sites and the CRS.

The concern was logistically how contact will be made with all sites, but the mid phase Module Chair has undertaken to address this issue. As the site-co-ordinator or designated medical officer will be responsible for the student's assessment at the end of the rotation it was recommended that they should provide regular in course feedback and have discussion with the students thus improving on the indicator that the doctor functions as part of the rehabilitation team. As the student assessments will be conducted at the sites, there will no longer be a need for the researcher as assessor of this module to provide feedback to the site co-ordinators regarding the student's performance as has been the case to date. With this shift in responsibility it was highlighted that the CRS should not to let go of the mid phase exposure and to ensure that the objectives, activities and assessments remain aligned with rehabilitation philosophy.

7.2.1.4 Late phase rotation

In order to provide an increased cognitive exercise in the late phase compared to the mid phase activity, it was recommended that the interdisciplinary activity no longer be arranged for the students. Each student will have to identify a patient who according to the ICF has a disability that needs management by a team of rehabilitation professionals. It will be the student's responsibility to create and enact a management plan which includes referral to the team members and engaging in interdisciplinary discussion with them. Students will be expected to follow up on the outcome of the intervention and appropriateness of their management plan. This affords the students an opportunity to see themselves as students and future doctors involved in interdisciplinary team work. This will occur at the CHC sites where they are placed for the five week rotation. All of these sites have access to team members and many have designated times for team meetings, into which the students can tap. Ideally this patient should also be the case for the DG discussion. This affords the student an opportunity to discuss the case with the researcher as facilitator of the DG contact session and receive feedback during the rotation.

At the end of the rotation, the students will still have an opportunity to reflect on their interdisciplinary exposure and provide a formal opportunity to discuss their attitudes towards persons with disabilities. They will be expected to hand in a portfolio at the end of the block which covers holistic patient care according to the ICF and management of the physical and work rehabilitation aspects of the case using team work. Other than their marks, students do not get feedback on these assignments and it was recommended that this deficiency still needs to be further discussed and addressed.

7.2.1.5 Theory block

Shortcomings of the theory block related to the content of the programme, notes and the proficiency of lecturing staff which is addressed in the following section.

7.2.2 General recommendations for the programme, educational methods and activities and assessment of students

The following have been presented to the Head of the CRS and the RPC but the RPC needs to explore these further.

- An expanded list of health conditions and problems has been suggested. Of note is the addition of degenerative neurological conditions, hearing impairment, HIV and TB,

cancer, muskulo skeletal and soft tissue disorders, chronic conditions, including diabetes, cardiac failure and COPD. Problem areas should include knowledge of medical aids and legalities, facilitation of community integration and ability to access community resources. The skills of amputation stump bandaging and communicating with a person with communication problems have also been suggested. It is recommended that these lists be further researched with patient, GP and other stakeholder input (e.g. Disabled people organisations). This in itself could constitute an independent study.

- The Rehabilitation programme can not ensure exposure to each item on these lists, however students should be aware of the extent of the impact of disability. Students should demonstrate their ability to apply an interdisciplinary approach based on the ICF in other specialities and health care settings across the curriculum. This would ensure the application of rehabilitation principles to a variety of the listed health conditions and exposure to a number of problems persons with disabilities experience and opportunities to include all possible rehabilitation team members. This will increase the number of rehabilitation contacts across the programme. This concept should be built into existing tasks in other specialities and should not create extra work load for the students. Such integration will have to be discussed with the respective module chairs of the specialities.
- The ICF is used in the introduction to the theory block but needs to be formalised into all lectures.
- Students need to be provided with an opportunity to consider their expectations of the programme before they start with their third year exposure. This can be considered for inclusion in the early phase rotation depending on time allocation in the recommended improved programme.
- The current set of notes used mainly for the clinical rotations needs to be reviewed. As the Microsoft Power Point© notes are not seen to be useful in the theory block, these revised notes could be tailored for possible use in the theory block as well.
- When compiling assessment tests and exams the importance of understanding rather than pure recall should be remembered.

7.2.3 Logistical support to the revised MBChB Rehabilitation programme

The following listed items were considered beyond the sole influence of the RPC and have been discussed with the Head of the CRS. These will be addressed by either the Head of the CRS or together with the RPC with their roles and responsibilities being established.

- The WCRC has hosted US elective students in the past and is prepared to do so in the future. The Head of the CRS should market electives through the CCE.
- Lecturers, site co-ordinators, facilitators and assessors need to be acknowledged for their input into the Rehabilitation programme. The Head of the CRS was of the opinion the RPC could provide letters of appreciation. The Head of the CRS can organise library access and CPD points can be awarded for involvement in student training for these academic staff.
- Training needs in educational and rehabilitation principles must be identified and forwarded to the Head of the CRS for further arrangements for training to be made. This training should be CPD accredited. This should be facilitated by the RPC via the module chairs. Opportunities such as the lectures of the MSc (Rehab) Disability Issues module, which covers rehabilitation principles relative to the MBChB programme can be utilised.
- The RPC needs to make contact with clinical site co-ordinators and facilitators at the beginning of the academic year to inform them of the content of the programme, discuss expectations of them as academic staff and when changes to the study guides are made. In the 2012 calendar year there will be monthly contact with selected rural mid phase site co-ordinators with the role out of the Hermanus model. Improved contact will also facilitate feedback on the Rehabilitation programme.
- Students need to give feedback on the programme at the end of each rotation on selected items contained in the indicators. This needs to occur at the time of contact with the students. Recommendations for ongoing monitoring will be made below.
- The Head CRS needs to and has agreed to offer increased personal support and mentorship to the programme.
- The Head CRS needs to provide the administrative support of the CRS where appropriate and has agreed to do so.
- The results of the students need to be tracked to monitor individual student progress and to evaluate the programme. The results of each phase as well as that of the theory and rehabilitation stations of the OSCE need to be recorded. The Head of the CRS expressed this to be the role of the RPC.

7.3 Review the indicators and tools and recommendations for repeat evaluation and ongoing monitoring of the MBChB Rehabilitation programme

The indicators have been used to develop tools for this once off evaluation of the US Rehabilitation programme. The data from direct stakeholders has allowed the researcher

to make recommendations for change to the existing programme. Responses from direct and indirect stakeholder have provided insight for review of the indicators and tools. These can be used for repeat evaluation and components can be used to monitor the programme.

Ongoing monitoring of the revised programme should involve all direct stakeholders. Indirect stakeholders should be involved again should there be a need to validate further indicators or content such as is recommended to review the list of health conditions and problems persons with disabilities face.

7.3.1 Review of the indicators

The wording and content of certain indicators requires revision. Where a number of respondents supported a new idea within a list used to evaluate certain indicators, or where the new idea was confirmed by the literature in chapter 6, revision of the list is indicated.

- 2.4: The activities should be sequenced so that students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability. Activities should be graded across the curriculum so that become more student-driven and less teacher-driven.
- 2.13: Students should be taught to manage persons with disabilities as they move through all levels of the continuum of health care i.e. primary (district), regional, tertiary (specialised) health care, in ambulatory (CHC), acute and de-hospitalised (sub-acute, palliative, home based care) care, in the public and private sector and in specialised ambulatory (community) and residential (in-patient) rehabilitation settings.
- 2.22: Health conditions to be added to the list are: degenerative neurological conditions, hearing impairment, HIV and TB, cancer, muskulo skeletal and soft tissue disorders, chronic conditions, including diabetes, cardiac failure, COPD.
- 2.23: Bio psychosocial needs that should be added are: Facilitation of community integration
- 3.3: Assessment methods should be revised as follows: OSCE was erroneously omitted and the mini-CEX was suggested as an additional method
- 5.1: Disciplines involved in rehabilitation teams: MOPs, HBCs, as well as medical specialists should be considered as team members and should thus contribute to the

Rehabilitation programme. Non-medical team members include religious ministers and politicians.

Two indicators although currently non-compliant due to feasibility within the US rehabilitation training programme were left unchanged so as to maintain the standard established from the literature reviewed in chapter 2. The use of standardised patients and the assessment of student attitudes by persons with disabilities (indicator 3.5) remain relevant as does pre and post test student assessments (indicator 3.8).

7.3.2 Review of the tools

No shortcomings were identified when using the interview schedules.

In this study additional questions were asked to gain data to supplement where the literature reviewed was inconclusive or to verify the indicators. As a result there was duplication in that the students were asked what educational and assessment methods they found valuable and then again against indicator 4.3 their satisfaction with teaching methods.

The following changes to the tools were recommended;

- Where the indicators have been revised, so should the wording of the associated questions.
- The definition against indicator 3.5 of a standardised patient as a person with or with out an actual health condition who is been trained to present a heath condition or problem in a standardised way (Long Bellil, Robey, Graham, et al, 2011) needs to be included.
- In asking students satisfaction with the resources against indicator 4.4 the a) proficiency of staff as clinicians and b) lecturers and c) quantity and d) quality of clinical teaching sites should be established separately.
- Where categorical options were offered, the option of ‘none of the above’ or ‘not applicable’ should also be offered.
- Separate tools for lecturers, site co-ordinators and assessors for various phases of the programme can be considered.

7.3.3 Recommendations for repeat evaluation of the programme

Area seven of the indicators called for programme evaluation and area nine for continuous renewal. This study has provided an initial evaluation of the inputs, educational activities and outputs of the programme.

The outcomes and impact of the programme were not addressed in this study. Application of a holistic rehabilitation management plan is often seen to be time consuming. The sentiments of a near to graduation final year student who was heard to say that once they are qualified they doubt if they will be able to apply all the ideal practices learnt at university due to the overwhelming work load in the public health care service. The design of the programme needs to meet this challenge so that it can be realistically applied in the graduates' internship and beyond. It is recommended that the assessment of the outcomes and impact of the programme in clinical practice after graduation be further researched as a separate study.

7.3.4 Recommendations for ongoing monitoring of the programme

The results of this study will be presented to the module chairs to consider adaptations to the US generic student feedback form. Once this thesis is finalised an appointment will be arranged with the Head CCE to present the summary of the findings of this study especially the concept of the indicators as he showed great interest in the study from an educational perspective. Changes to the standard feedback form may impact on the monitoring of other programmes and should be discussed at the Curriculum Committee should this be deemed necessary. The literature which describes how students are trained to give constructive feedback on programmes and especially on staff performance (Kruidering-Hall, O'Sullivan & Chou, 2009) will also be discussed with the Head CCE.

In this study apart from the interviews with the Head CCE and CRS, most of the data was obtained through questionnaires. Selected relevant aspects of these tools can be extracted to obtain Rehabilitation programme specific feedback from students. As each of the exposures is delivered in different contexts, with different staff and different activities, feedback at the end of each module is recommended. Considering that the sixth year students marked giving feedback to be a burden, the content and length of these questionnaires needs to be carefully considered. Bearing in mind the time it took to develop the questionnaires for this study, it is recommended that the researcher takes this forward with the RPC as a project.

As it was a challenge to obtain responses from the sixth year students and as supported by the Head CCE it is recommended that these questionnaires be administered during contact sessions with the students. This is possible in the early phase and theory block. As of 2012, the mid phase students will be completing their rotation including their assessments at the rural sites. This phase is now largely entrusted to the rural site co-ordinators, so feedback on the rotations will be discussed with the mid phase Module Chair.

Although there is direct contact with the students in the late phase, this is not at the end of the module. A recommendation for discussion would be that students provide written feedback in the form of a questionnaire which can be submitted together with their written assignment at the end of the module. Assignments are currently submitted to the Family Medicine undergraduate secretary so submission of a feedback form can be recorded but can be kept anonymous. The last contact with the students during their curriculum is at the OSCE. It has been discussed that this is not an appropriate time to ask the students to complete a feedback form, either before or after the OSCE. A further recommendation is that at the end of the late phase rotation questions could be asked regarding the programme as a whole, but would exclude the OSCE.

Although the literature suggests that students should provide feedback after each lecture (Van Wyk and McLean, 2007) as in the theory block, the researcher from interacting with the students is of the opinion that this is unlikely to be acceptable. In the theory block a single feedback form could provide students with an opportunity to specifically comment on each lecture given. This principle can be applied to the clinical rotations where more than one lecturer is involved. The suggestion that lectures evaluate their own performance and compare this to student comment will be discussed further with the module chairs, RPC and educational experts.

This study revealed the importance of obtaining information from as wide a source base as possible. Although oral or e-mail ad hoc feedback is provided by the site co-ordinators and module chairs, formal feedback has only been obtained from students in the past. It is recommended that module chairs, lecturers, site co-ordinators facilitators, and assessors provide written feedback at regular intervals throughout the year to the RPC.

A questionnaire based on the indicators and tools will facilitate structured comprehensive feedback on all relevant aspects as covered by the indicators. This study has highlighted the importance of not only evaluating the educational programme methods, activities and student assessment methods but also the staff, resources, administration and the existence of programme evaluation. The tools used in this study were generic for the sample groups to gain input on a wide range of indicators. It is recommended that specific concise feedback forms be designed purposefully for each group according to the phase or activity. The theory block lecturers would provide feedback annually but the frequency for clinical rotation feedback will have to be established.

When considering what aspects of the indicators should be covered in these suggested written feedback forms components of the programme that have been changed should be monitored but currently compliant aspects should not be neglected. Input regarding the individual modules as well as the programme as a whole should also be obtained. Feedback to the annual Module and Rehabilitation review meetings should also be structured to ensure all relevant aspects of the indicators are covered.

Ad hoc feedback as has occurred in the past is not discouraged but needs to be documented. With opportunities for regular feedback, documentation is more likely and lecturers should be encouraged to provide feedback via the forms. It has been recommended that the RPC has regular contact with the sites for all the phases to develop a relationship with each. This will also encourage feedback.

7.4 Final recommendations

Recommendations have been made for changes to the programme and ongoing monitoring in consultation with the Head CRS and the RPC. Apart from the contact time with the rural sites which needs to be managed by the rural Module Chair, it has been recommended that the ongoing monitoring and evaluation of the programme, which has been limited to date, fall to the RPC. It is the researcher's opinion that these demands are not possible to be met with the current time allocated to the services of the contracted RPC. A final recommendation is that this post be re-evaluated. The current incumbent is, as supported by the results of this study, passionate about the programme. As results of this study have become available, the RPC has taken a keen interest facilitating prompt yet consulted changes as of the beginning of 2012.

The results of this study need to be presented to those respondents indicating that they would like feedback on the study. The rehabilitation doctors were particularly interested in the programme. In sharing the conclusions and recommendations of this study with them, the subject of a special interest group for rehabilitation doctors with a view to specialisation will be revisited.

It has been noted that this study is unique in its involvement of persons with disabilities as well as indirect stakeholders. A single article has since been found which reports the involvement of persons with disabilities and disability interest groups in the development of a rehabilitation programme. It has also been suggested that the programme is one of its kind in SA. Three articles were found referring to isolated rehabilitation exposures at two universities in SA. This raises the importance of publication of this study as well as the programme itself in local and international Rehabilitation, General Practice and Education journals.

A further recommendation is for the CRS to establish the extent of disability and rehabilitation training of undergraduate medical students at other universities in SA. This will determine the need for sharing the current programme, indicators and monitoring and evaluation tools. Permission to do so will have to be discussed with FHS management. This will facilitate the vision that every doctor trained in SA will have had exposure to disability and rehabilitation training in their undergraduate curriculum to enable them to manage the needs of persons with disabilities. This will increase the awareness of Rehabilitation as a speciality and its acknowledgement and potential development in SA. Although an existing programme can be shared with another university the internal logistics of the receiving university may not allow implementation in the same format. Rehabilitation programmes at other universities can thus be designed around the indicators developed for and verified in this study.

7.5 Summary of the study

The aim of this study was to evaluate the Rehabilitation programme of the MBChB curriculum of the US and to make suggestions for its improvement. Despite the lack of specific literature pertaining to the subject, a volume of information has guided the development of a set of indicators according to the WHO approved WFMEs Global standards for basic medical education. 65 indicators were identified using the literature reviewed and were arranged according to nine areas.

Data was gained predominantly through the use of questionnaires, most of these being self administered via electronic mail. Interviews and CRS, FHS data sources were used to obtain further information. Data was collected and analysed to determine the compliance of the programme against the indicators. Additional data collected was used to verify the indicators.

The input of a wide range of sample participants from nine sample groups was obtained. Over and above traditional samples directly involved with the programme, persons with disabilities were invited to participate as suggested in the literature reviewed in chapter 2 but of which no examples could be found at the time. Indirect stakeholders namely GPs, rehabilitation doctors and rehabilitation team members completed the unique study sample.

Based on the interpretation of the results the Rehabilitation programme was found to be compliant against 40 of the 65 indicators, four of which require further attention. Recommendations have been made for a revised programme which has been initiated from the beginning of 2012. Further recommendations have been made for the programme which will need attention beyond the scope of this study as well as for further research. This study has provided a once off initial evaluation of the programme which sets the standard for subsequent monitoring and evaluation. This study also sets a standard for the development and evaluation of rehabilitation programmes at other universities in SA.

7.6 Chapter summary

In this chapter the recommendations based on the results of this study and discussions with the Head CRS, RPC and an educational expert have been made. The RPC and researcher were able to recommend a revised programme for the early and late phases which were put into place in 2012. The mid phase activities will be guided by the Hermanus model with CRS staff facilitating rehabilitation knowledge at the sites. The theory module will be reviewed later in 2012. Recommendations regarding the logistical support of the programme have also been made.

Recommendations have been made for two changes to the indicators with the tools being changed accordingly and with the addition of items as offered by respondents in this study. The indicators used in this study have provided guidelines for ongoing monitoring and

evaluation which needs to be further planned. Further research into the health conditions and bio psychosocial problems present in the community needs to be conducted. An important final recommendation is that that the post of the RPC be evaluated as the success of the programme will depend on this.

The chapter concluded with a summary of the study.

Closing remark

The World Federation for Medical Education stated that the main goal of medical education is to improve the health of all peoples.

This study was aimed at improving the rehabilitation programme of the University of Stellenbosch to improve the management of Persons with disabilities. The programme is directed at the development of knowledge, skills and attitudes of students, but indirectly it is envisioned that those delivering the programme will also become better clinicians.

In traversing the journey of this study the researcher has personally benefited from the knowledge and skills gained, and endeavoured to share this with students and colleagues, clinically, academically and personally, with the intent of enriching their personal and professional lives.

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PROFILE OF THE STELLENBOSCH DOCTOR

The recently graduated Stellenbosch doctor must possess the necessary knowledge, skills and attitudes to optimally utilize the opportunities available during the internship so as to be able to function autonomously in the primary health care sector thereafter, and must also be equipped with the necessary ability and insight to develop further personally and professionally.

To fulfil these requirements, the recent graduate must exhibit the following professional characteristics:

Knowledge: The recent graduate will have relevant knowledge of:	**Skills**	**Attitudes/Views**
1. Necessary medically applicable scientific and mathematical concepts.	1. The ability to integrate, interpret and apply knowledge.	1. Respect for life, self as well as humankind and its diversity.
2. The normal function and morphology of the human body and psyche	2. The ability to think and act in a problem solving fashion.	2. A loyal and ethically accountable disposition towards the profession, patients and community.
3. The abnormal function and morphology of the human body and psyche.	3. The ability to communicate effectively with patients from different cultural groups in the process of diagnosis and management.	3. An acknowledgement of the limitations of own knowledge and skills.
4. The maintenance of health and prevention of disease (physical, mental and social).	4. Sufficient skills in diagnostic and therapeutic procedures to be able to function as intern.	4. A positive disposition towards continuing professional development.
5. The recognition and diagnosis of common diseases and abnormalities of the human body and psyche.	5. The ability to function holistically within the context of family and community.	5. A willingness for involvement and service within the broad community

Knowledge: The recent graduate will have relevant knowledge of:	**Skills**	**Attitudes/Views**
1. Treatment and rehabilitation options	1. The ability to establish and manage a primary health infrastructure.	1. An empathetic disposition towards patients, their family as well as the community and a willingness for accessibility.
2. The appropriate use and limitations of special investigations and diagnostic methods.	2. The ability to interpret and apply relevant literature.	2. The acceptance of his/her full responsibility within the patient/doctor relationship.
3. Factors in the community environment that can influence health.	3. The ability to manage and organize one's activities responsibly and effectively.	3. The willingness to set a positive example regarding social responsibilities and obligations
4. Finances, management and structures of health care.	4. The ability to function effectively in stressful circumstances.	4. Acknowledgement of the importance of the interdisciplinary team approach in patient care and respect for the other members of the interdisciplinary health team as well as acknowledgement of the contribution of the allied health professions to comprehensive health care
5. Ethics and legal aspects that are applicable to medicine.	5. The ability to function optimally within the interdisciplinary health care team.	
6. The interaction between biological, psychological and sociological factors that play a role in health.	6. The ability to take part in and guide continuous and in-service training as well as community education.	
7. Alternative and complementary medicine.	7. The ability to effectively utilize relevant technological resources (e.g. computers) in the health environment	
8. The principles of research.		
9. An interdisciplinary approach in health care and the roles and skills of allied health professionals		

Appendix 2: Early phase study guide extract

UNIVERSITY OF STELLENBOSCH

MB, CHB
Phase III – Early Clinical Rotations
2010

Year 3

Health and Disease in the Community
Contributing Disciplines:
Community Health, Centre for Rehabilitation Studies, Family
Medicine and Primary Care

52396 371

INTRODUCTION

Welcome to this clinical rotation, which is organised by the Discipline of Community Health, the Centre for Rehabilitation Studies and the Discipline of Family Medicine & Primary Care. This study guide provides the information you will need to understand what is expected of you and how you will be assessed.

AIM

Welcome to this clinical rotation, which is organised by the Division of Community Health, the Centre for Rehabilitation Studies and the Discipline of Family Medicine & Primary Care. This study guide provides the information you will need to understand what is expected of you and how you will be assessed.

OUTCOMES

The three disciplines have agreed on joint outcomes for the clinical rotation.

By the end of the rotation you should be able to:

1. Do a comprehensive (clinical, individual and contextual) assessment of patients, by integrating effective communication, history taking and physical examination skills.
2. Understand and discuss the importance of the patient's family and community in the context of illness and physical disability.
3. Understand and discuss the different perspectives of health, disease and culture that influence health-seeking behaviour.
4. Identify and articulate possible ethical issues you will face in interacting with patients, colleagues and health care settings.
5. Identify the opportunities for promoting health and preventing disease and disability in each patient encounter.
6. Assess activities within the health care facility or community that are intended to promote health or prevent disease and disability.
7. Understand and describe the structure and function of the health care system at primary care level.
8. Explain how medical science draws conclusions from observational and experimental investigation and tries to deal with uncertainty/probability.
9. Describe the health status of the community around the site you are allocated, how this can be measured/estimated and the factors which affect the health of the people living in the area.
10. Understand and discuss the interaction between a person's physical, social and work environment and their health-status or functioning.
11. Understand and describe the process of re-integrating a person with disability into their community and ensuring their full participation in society.
12. Discuss waste management systems and the key associated problems/challenges.
13. Understand and describe your role, function and interaction with the multi-professional health care team.
14. Identify your learning needs from your own experience during the rotation, formulate appropriate questions, and design and execute appropriate searches to answer those questions as scientifically and verifiably as possible.
15. Develop personal attributes that are conducive to the building of caring and positive relationships within the health care system.

BACKGROUND AND PRIOR KNOWLEDGE

This clinical rotation builds on your development from the first two years of your MB, ChB program as listed below:

- Lectures, basic history taking, communication skills and physical examination skills learnt in Introduction to Clinical Medicine in 2nd year.
- Other lectures
  - ⇨ The Principles of Applied Medical Ethics – an introduction.

- ⇨ Data Management (Bio-statistics) and clinical epidemiology (1st year)
- Basic computer skills (1st year)

INSTRUCTIONS AND TIMETABLE

All students should meet at 08h00 in room 4053 in the **Teaching Block on the 4th Floor.** There will be a general introduction to the rotation and the study guide. A student co-ordinator for the 4 weeks of the rotation will be appointed. The co-ordinator will help with logistical arrangements and negotiate any changes needed on behalf of the group as a whole. The co-ordinator should be easily contactable.

At this meeting you will be divided into groups and assigned to the various teaching sites. Any safety or travel issues can be discussed. The activities organised for the rotation will be explained and the method of assessment clarified.

The activities organised by the **Centre for Rehabilitation Studies** will be in Room 4053 in the **Teaching Block on the 4th Floor** on the first Tuesday at 08h30. Here you will receive reading material and instructions regarding the activities related to assessing a person with a disability.

CONTACT NAMES AND NUMBERS

CENTRE FOR REHABILITATION STUDIES
Faculty of Health Sciences, Tygerberg Campus

Head: Ms G Mji	021 938 9528
Senior Lecturer: Ms Siphokazi Gcaza	021 938 9165
Ms Maria Van Zyl	0843064576

SECRETARY

Ms Refiloe Mothabeng	021 938 9090

ASSESSMENT

Assessment will take place during the rotation. There will be no end of year exam. You must pass the clinical rotation as a whole (> 50%) in order to pass MBChB 3.
All site visits are also compulsory. Any student missing a site visit without an adequate reason will have marks deducted from their evaluation.
Any student wishing to be excused from a visit must provide a written explanation. Missing such visits without proper excuse will also result in an entry on the student's academic record and could mean having to repeat the current of a future practical rotatsie. .

Your mark for the rotation as a whole will be made up of the following components:

Portfolio assessment	30%
Project presentation	30%
Tutor assessment	5%
Palliative Care	5%
Measuring Health and Disease	10%
Presentation: Rehabilitation and management of the person with a physical disability	20%

Continuous Tutor Assessment

A schedule for tutor assessment is included. Various aspects pertinent to your development as a medical practitioner in keeping with the profile of the Stellenbosch Doctor will be addressed and assessed viz. Attitude, Knowledge and Skills.

Portfolio assessment

Each student must hand in his or her portfolio on the final day. The portfolio should contain:

1. A logbook of 3 patients encountered in your consultations. Each patient must have a subjective and objective assessment, a 3-stage assessment, a basic genogram and reflection on your learning. Please write up patients that have not been written up by other students, as far as possible. Do not duplicate each other's notes on a patient! Get your tutor to append his/her signature to the patient you are writing up.

2. Ethical issues – individual report. Identify an ethical problem encountered with a patient from your logbook or from the home visit, environmental health visits, community visits or health care facility. This may be related to the topic allocated to your group at the introduction or if you encounter difficulty with the topic you may in consultation with your tutor decide to write up an ethical issue related to your patient. Articulate the specific ethical dilemma you are faced with (i.e. use ethical terms to describe or define the ethical problem). Explain the dilemma in terms of the 4-principle approach. (See later)

3. Evidence-based medicine – individual report. Reflect on your logbook of patients and identify a knowledge gap; convert this into a focused, answerable question and perform a Medline Search to obtain references to the best available evidence. Write up one of these questions using the following headings: Clinical scenario, focused, 4 part answerable question, and attach the 'search for references to best available evidence'. (See in the appropriate section in the study guide). Do an analysis using the *READER* acronym or the user friendly guide you will receive during the tutorial.

Centre Rehabilitation Studies: Presentation – See marking schedule

HEALTH AND DISEASE IN THE COMMUNITY

INTRODUCTION

Community or Public Health is about the health of a community or population, and how this may be measured and changed. As the individual is part of a community, diseases in individuals and groups of people need to be studied in the context of the social, economic, work and physical environment. Community/Public Health skills help health professionals to assess and strengthen health care systems.

Public health is the organised global and local effort to promote and protect the health of populations and reduce health inequities. Beaglehole 2003. Public Health at the Crossroads: Achievements and Prospects by Robert Beaglehole and Ruth Bonita

Public health is the science and art of preventing disease, prolonging life, and promoting health through the organised efforts of society. The Acheson Report (The Report of the Committee of Inquiry into the Future Development of the Public Health Function. Cmnd 289 London HMSO 1998)

Family medicine uses an approach of listening, thinking about and talking to patients. It attempts to see the person as a whole, uses techniques of pattern recognition and probabilities rather than extensive differential diagnoses and expensive investigations. It is far more accepting of uncertainty, personal limitations and death as part of life and builds on an understanding of relationships within the context of a family and the community.

Rehabilitation medicine is about assessing a person with a physical disability and identifying impairment(s), activity limitations and participation restrictions, evaluating a person's discharge environment (residential and community) and identifying the barriers and resources that play a key role in the short and long term management of this client. It is about empowering people with disabilities to optimise their social functioning and respecting them as fellow human beings.

Your focus should be on your primary role as a medical practitioner: What do I need to be able to function effectively and efficiently in meeting both the felt and real health needs of the patients and the communities which I will serve.

LEARNING OPPORTUNITY 9: EVALUATION OF PERSONS WITH DISABILITIES

The activities organised by the Centre for Rehabilitation Studies all take place on Tuesday mornings.

AIM

To understand and describe the process of re-integrating a person with disability into their community and ensuring their full participation in society.

To understand and describe your role, function and interaction with the interdisciplinary health care team.

OUTCOMES

By the end of the clinical rotation you should be able to:

- Assess a person with a physical disability and identify his/her impairments, activity limitations, participation restrictions and outcome level.
- Describe the person's discharge environment (residential and community).
- Identify barriers and resources that play a key role in the short and long term management of this client.
- Describe the impact of the disablement on the person, family and the community.
- Understand the social model and human rights perspective to the management of persons with disabilities.

BACKGROUND KNOWLEDGE

Basic clinical physical examination skills as learnt in the Introduction to Clinical Medicine in 2nd year.

Personal knowledge derived from any previous contact with a person with an illness or injury that resulted in a limitation of that person's daily activities and participation in society.

The student is expected to conduct him/herself with professionalism towards the disabled client, the client's home, the rehabilitation institution and its personnel as well as other fellow health sciences students working within these Rehabilitation institutions. (Please refer to the Code of Conduct as outlined in page V of this study guide)

RESOURCES

Reading material (to be issued in first week)

Appropriate medical literature pertaining to the client's diagnosis e.g. medical text books, scientific journals etc.

ANYTHING SPECIFIC YOU SHOULD DO?

Please note: Each activity (1-3) as well as the presentation must be conducted or performed as a group (i.e. each member of the group must participate in each task). Thus, the tasks related to these activities must not be divided amongst individual students but should be done as a group. Groups that do not follow this instruction will be penalised.

Activity 1(1st Tue)

- The group will explore their learning expectations for the rotation
- The clinical supervisor will explain what will be covered in the three phases and in the theoretical block of the MB, ChB curriculum
- The clinical supervisor will discuss practical aspects of the activities 2 and 3
- Rehabilitation department must take responsibility for organising a venue at GERGA or one of the lecture theatres at the medical school for the final session
- Handing out of notes
- Slide presentation to illustrate relevant aspects in the evaluation of a person with a disability and to discuss background issues relevant to disability
- Discuss selection of suitable patients for rehabilitation
- Sharing of experience by a disabled person regarding his own community reintegration post rehabilitation
- The clinical supervisor will provide the students with case names (one per group) and the name and telephone number of the therapist. The student must contact the patient, the therapist and locate the address between now and the 2nd Tuesday and make the relevant appointments with the patient for the 2nd Tuesday and the therapist for the 3rd Tuesday
- The patient will have undergone rehabilitation at either Western Cape Rehabilitation Centre (WCRC) or Bishop Lavis Rehabilitation Centre (BLRC)
- The group leader will have additional names should you have problems making contact with the patient. Should you still not be successful, contact Ms Gcaza at Centre for Rehabilitation Studies. Please make a concerted and timeous effort before you try these alternatives. All the groups so far have been successful with a little perseverance)
- When you phone, explain that the therapist at WCRC or BLRC have sent you for a learning opportunity and what you intend to do.

Activity 2

Structure your time so as to complete all the activities.

Second Tue morning: conduct home visit and evaluation of the patient and their immediate environment, take photographic material if desired (but please ask permission to take photographs), explore the community environment and do a contextual assessment

Third Tues morning: Visit Therapist, plan your feedback presentation

- There is no contact with the clinical supervisor before the presentation. If you wish to discuss any aspect (e.g. the patient or the presentation), please feel free to contact us and discuss telephonically or make an appointment to come and see us.
- Conduct a home visit on the second Tuesday

- Take a comprehensive history
- Do a clinical and functional evaluation of the person
- Determine the client's impairments, activity limitations and participation restrictions including the extent (mild, moderate, severe)
- Identify the person's current rehabilitation outcome level
- Identify causative factors of the disability within the person's lifestyle and home environment, and assess if these have been addressed
- Identify potential and/or existing health-related complications associated with the disability and their causative factors
- Inquire as to the person's perception(s) as to (possible) cause/s of their disability
- Explore the impact of the impairment(s) and activity limitations on the individual/family members:

  What has been the effect on their own life roles and those of family members?

  Have there been role adaptations and in what way?
  What are the psychosocial and economic effects of the disablement on the family?

- Inquire as to the person's fears and expectations regarding their daily activities and future participation in the general systems of society
- Review the rehabilitation process with the client:

  What benefits has the client derived/experienced so far?
  What is the client's perception of rehabilitation services rendered?
  What needs have not yet been addressed?
  (Subjective and objective views need to be explored)

- Inquire as to the person's experiences as a person with a disability regarding any past or present infringements on their human rights
- Identify and describe the nature and extent of existing (or potential) barriers (physical, attitudinal, cultural etc.) that prevent full participation and community re-integration e.g. the home environment, Community clinic, shops, schools, recreational facilities, church, post-office etc.
- Identify and describe the nature and extent of existing or potential resources in the community that could facilitate full participation and community re-integration
- Identify and describe possible predisposing causative factors of the disability in the environment and any preventative strategies currently in place
- Read up on the aetiology, prognosis and treatment of the client's condition to compliment your understanding of the case study.
  (This information should not be discussed with the client. If the sub- group feels there is a deficiency in the patient's or family's knowledge of the disability and/or treatment, this should be brought to the attention of the clinical supervisor.)

  It is the responsibility of each student to ensure that the client signs a visitation form and this form should be handed over to the facilitator on the day of the presentation.

- Identify what the group, and each of you as individuals, has learnt from this interaction and reflect on your feelings to this exposure
- In your sub-group, discuss how you can integrate what you've learnt in the past few weeks into your future practice as a general medical practitioner.

Activity 3

- Visit the site your therapist in charge of the client is located at and read the clinical notes made by the therapist at least 1 hour prior to meeting the therapist. Discuss both your assessment and pertinent findings of the patient and environment in relation to the notes and assessment of the therapist including future rehabilitation prospects.
- It is the responsibility of each student to ensure that the therapist signs the professional conduct form and allocates a mark out of 10 and this form should be handed over to the facilitator on the day of the presentation
- Prepare a presentation summarizing the sub-group's findings using the marking schedule as a guide
- All students should participate in some way in the presentation
- Presentations must be 10 – 15 minutes long, covering all the relevant details
- All information must be presented in the presentation. Please do not submit written portfolios. These will not be marked!
- Each presentation will be followed by a short discussion of pertinent rehabilitation principles
- A mark is allocated for enthusiasm and the originality of the presentation. Many groups choose to use Power Point, videos and digital photographs, but you will not be penalised for not using these media.
- Each group completes a feedback form
- Each student rates the participation of other group members in the 2nd and 3rd activities.

PRESENTATION ON ASSESSMENT OF PERSONS WITH DISABILITIES

The group must present their findings and opinions and must include all aspects as tabled in the marking schedule below.

It is expected that all members of the group participate in the learning opportunity and it is preferable that all group members participate in the presentation. The extent of group participation will be assessed in the final session.

The group presentation will account for 90% while the other 10% will account for professional conduct.

Group number:	**Date:**	**Site:**
Group members:		
Examiner:	**Patient's name:**	
Examiners signature:		

Assessment:	Poor	Below standard	Standard	Above standard	Exceptional
Mark:	2	4	6	8	10

COMPONENT	**Score**	**Weight**	**Total**
Has the group correctly and adequately identified the following?			
The client's impairment(s)		**10**	
The nature and extent of activity limitation(s)		**10**	
The nature and extent of participation restriction(s)		**10**	
The person's current rehabilitation outcome level		**10**	
Barriers impeding full participation in society (existing or potential)		**10**	
Resources facilitating full participation in society (existing or potential)		**10**	
Overall impact of disablement on the person, family and community		**10**	
Possible Human Rights infringements		**10**	
Future Health and rehabilitation needs including the discussion you had with the therapist		**10**	
Quality of the presentation. Power point presentations do not automatically earn more marks		**10**	
TOTAL		**/100**	

CONCLUSION OF ROTATION

During the final hours of the rotation you will have the opportunity to give feedback, constructive criticism and suggestions to improve the rotation.

Appendix 3: Mid phase study guide extract

UNIVERSITY OF STELLENBOSCH

MB, ChB
Phase III - Middle Clinical Rotations
2010

Year 4 & Semester 1 Year 5
Health and Disease in a Rural Community
Part of Clinical Rotations 65722 471/65722 511

Contributing Departments:
Community Health, Family Medicine and Primary Care &
Centre for Care and Rehabilitation of the Disabled
Part of Clinical Rotations 65722 471 and Clinical Rotations 6572251

INTRODUCTION

Welcome once again to the departments of Family Medicine, Community Health and the Centre for Care and Rehabilitation of the Disabled. We have decided to develop a rural rotation for you during this block.

This study guide gives you the key information you will need to understand what is expected of you and how you will be assessed.

The aim, objectives and outcomes of the rotation are as follows:

AIM

To expose students to the generalist nature of rural practice, allowing them to develop skills of clinical judgement, self reliance, diagnostic, therapeutic and procedural skills, as can be taught by a team of expert rural health workers and to develop an understanding of the community/health challenges facing people and health workers in these areas.

OUTCOMES

- To be able to assess and manage a patient in a comprehensive way in a rural setting using a 3 stage assessment (clinical, individual and contextual) and management plan (Handbook of Family Medicine Chapter 2) and revisit the genogram to understand the role of family structure on illnesses.
- To develop procedural skills appropriate to a primary level of care.
- To describe the different roles of the health workers in a rural setting. (Handbook of Family Medicine, Chapter 10)
- To be able to assess the influence of the society and culture on health and disease in a rural setting.
- To identify behaviour and or lifestyle patterns that result in health risks and be able to focus on modification of those risk factors in the individual patients and their community.
- To identify, analyse and articulate possible ethical issues emanating from your patient or community encounters.
- To be able to identify the key/major health challenges facing the rural community served by the health services.
- To be able to describe the rural health infrastructure, i.e. home based care, mobile and permanent clinics, the district hospital, the District Health System, the Private General Practitioner
- To be able to assess a person with a disability and formulate and enact a holistic management plan.

BACKGROUND AND PRIOR KNOWLEDGE

This rotation builds on aspects of all the clinical rotations in 3rd year and especially the clinical rotation in Family Medicine, Community Health and Rehabilitation where you were equipped with history taking, communication and physical examination skills.

Please refer to the relevant lecture notes.

INSTRUCTIONS AND TIMETABLE

On the first day of the rotation a joint introduction will be done by the contributing departments and the Centre for Care and Rehabilitation of the Disabled. All students on the rotation should meet at **F336 in the Fisan Building at 08h15.** There will be a general introduction to the rotation and the study guide, projects, portfolio and assessment will be discussed.

Notes for rehabilitation (2 packs of notes) will be obtainable from the Department of Family Medicine Please read this study guide carefully so you know what feedback needs to be provided by the end of the rotation

The whole group on the rotation meets again in the Fisan Building Room F336 at 14H00 on the last day of the rotation at the department of Family Medicine for a report back on the rotation.

CONTACT NAMES AND NUMBERS

Rehabilitation Medicine

Head: Ms G Mji (Faculty of Health sciences, Tygerberg Campus)	9389528
Dr H Sammons (Clinical supervisor)	0842501328
hsammons@pgwc.gov.za	

ASSESSMENT

Assessment will be continuous throughout the rotation and there will be a final assessment at the end of the rotation. There will be no end of year exam. You must pass the clinical rotation as a whole (≥50%) in order to pass the year. If you fail to obtain a pass mark in this rotation you will have to pass an additional examination at the end of the year before you can proceed to the following year. Your mark for the clinical rotation as a whole will be made up as follows:

Rural rehabilitation patient study	15%
Portfolio assessment (excluding Rehabilitation patient studies)	
Community Health Project	25%
Patient Study	25%
Site coordinator assessment	25%
Participation in internet discussions	10%
Total	**100%**

Portfolio

Each student must hand in their portfolio for the rotation on their return from the rural area (not later than the last day of the rotation). The portfolio consists of the following:

4. Rehabilitation Patient Studies

   Together you will identify a patient in the rural area with an impairment that limits their function and participation. Together you will prepare a simulated patient interview and a written component, which will determine your mark.

The project and rehabilitation simulated patient interview and written feedback are marked as a group effort.

HEALTH AND DISEASE IN A RURAL COMMUNITY

During this rural rotation you will be exposed to a variety of learning opportunities. You will be encountering community based and community orientated health care. Much of your learning will be experiential. Your tutor at the site will guide you. You will note how health care is taken to the people during your visits to remote outlying areas. Disease prevention and health promotive activities will play an important role. Take heed of your patients expectations, fears, anxiety and attitudes towards illness.

You are expected to take note of the aim and outcomes as set at the start of this manual.

The activities or timetable may differ at the different sites but an attempt to maintain uniformity in content will be made. **Students at Hermanus and Worcester will be given guidelines for participation in Interdisciplinary activities**.

You will be required to participate in most of the following activities:

- Ward work
- Out patient's departments
- Theatre – observe or assist at the discretion of the medical practitioner
- Shadowing of a general practitioner at his/her practice – here you may be exposed to house calls. Also the doctor may visit satellite clinics and prisons
- Procedural skills development e.g.
  Insertion of catheters
- Visits to professionals of allied medical services if they are available

  Physiotherapist
  Occupational therapist
  Speech therapist
  Dietician
  Psychologist
  Social worker
  Dentist
  Orthopaedic aftercare sister/community Sister
  Radiography
  Ultasonography
- Visit to the District Health Clinics
  Developmental assessments

  Chronic disease clinic

  Mental health
- Mobile clinics

  Farm visits
- Interdisciplinary student activities

  This may take the form of projects or case studies incorporating activities participated in as an interdisciplinary team of students. These activities may occur at a school, in a community, clinic, home for senior citizens or the district hospital. Guidelines on the various themes that have been proposed will be supplied.

The environment, sanitation, water supply, education especially of the farm children, types of industry, child labour, abuse of alcohol and consequences thereof (e.g. foetal alcohol syndrome, spousal abuse) should be looked out for.

HEALTH AND DISEASE IN A RURAL COMMUNITY

LEARNING OPPORTUNITY 1: REHABILITATION AND MANAGEMENT OF PERSONS WITH PHYSICAL DISABILITIES

AIM

To assess a person with a disability and formulate and enact a holistic management plan.

OUTCOMES

By the end of this rotation you should be able to

1. Identify a patient that will benefit from interdisciplinary rehabilitation and apply the principles of management in a rural setting
2. Determine the prognosis for a disabling condition in medical terms and according to the outcome level.
3. Identify and list problems that need intervention.
4. List the specific interventions that could be implemented to alleviate each of these problems, including: short and long term plans, the need for prosthetic, orthotic and assistive devices, specific advice and referrals to other resources.
5. Identify and list current and potential complications of the impairment and the management thereof
6. Recognise devices used in the rehabilitation of a person with a physical disability e.g. wheelchairs, mobility assistive devices, catheters

BACKGROUND KNOWLEDGE

- History taking and physical examination skills
- Knowledge and experience gained during the early phase rotation in rehabilitation
- Knowledge and skills obtained during rotations through the major disciplines especially neurology and orthopaedics

RESOURCES

- Reading material issued in the early phase
- Reading material (to be issued in first week):

  The clinical evaluation of a person with a disability.
  The goal oriented management plan.
  Management of problems specific to rehabilitation.

- Appropriate medical literature pertaining to the client's diagnosis e.g. medical textbooks, scientific journals etc.
- Ask your Tutors and allied health workers to show you examples of devices referred to in the notes e.g. wheelchairs, catheters, foot and hand splints, prostheses. If these are not available you are always welcome to contact the Clinical Supervisor for further instruction albeit after the closure of the rotation. The allied health workers should also show you how to safely transfer a dependant a patient e.g. bed to wheelchair.

ACTIVITIES

Activity 1 (during the rural stay)

- Each student group at each site is to identify a patient in the rural area to evaluate as a rehabilitation patient (Task 1) according to the guidelines and marking schedule set out by Rehabilitation. This patient should have suffered a recent disabling event but does not have to be a classical rehab patient (i.e. CVA, head injury, amputation or spinal patient). The patient must be suffering from some impairment that is impacting on the person's ability to cope with daily activities and participation. It must not be a patient that has completed a rehab programme and has all their problems identified and managed. The patient can be from the in-patient, out-patient or community population. The therapists can be instrumental in selecting a suitable patient.
- Take a comprehensive history
- Do a clinical and functional evaluation of the patient
- Determine the patient's impairments, activity limitations and participation restrictions
- Identify the current and predicted outcome level
- Identify the prognosis for the impairment
- Identify the patient's medical and rehabilitation needs
- Draw up a problem list and suggest solutions to manage these problems
- Identify current and potential complications
- List management plans for these complications
- Use the section "Goal orientated management plan" as your guide
- Out of the problems and complications identify one therapist that you would like to refer this patient to and write a referral letter including a suitable amount of medical information and the reason for the referral
- Discuss your assessment with the professionals available at the rural site and try to understand how this patient will be managed in a rural setting.

- Discuss how specific therapist/resources can be accessed if not available in the immediate community
- Discuss what role you as a medical professional could play (e.g. what advise could you give to the patient/family/carers in respect of seating, positioning, swallowing, self-care, etc.)

Prepare a simulated interview between the patient and/or family member and the doctor so as to demonstrate your understanding of the patient. Use the marking schedule 1 as a guide so that you focus your efforts. (You as students are the actor/actresses! One is the doctor, the other the patient/family member/care giver. All group members must participate in the feedback session.) The format of the consultation should be that of an information giving session rather than that of history taking or assessment of the problems. Diagnosis, prognosis and treatment plans should be discussed. Include how you would give practical advice to the patient/family/carer.

- Write a referral letter to a therapist of choice to be handed in on the last morning. This is done as a group. One referral letter per site. This is the only written feedback required.

ASSESSMENT

MARKING SCHEDULE 1

Simulated patient interview

Group number:	**Date:**	**Site:**
Group members:		
Examiner:		
Examiners signature:		

Assessment:	Poor	Below standard	Standard	Above standard	Exceptional
Mark:	2	4	6	8	10

Standard required:	**Score**	**Weight**	**Total**
Initiation of the conversation and establishes rapport with the patient		**5**	
Conducts the session with empathy and insight into the impact of the impairment on the patient's activities and participation		**5**	
Provides the correct information in explaining the diagnosis and the prognosis in the short and long term		**20**	
Provides a summary of the problems and the management plan (includes referrals to medical professionals, resources in the community, medical and assistive device prescription)		**15**	
Provides appropriate advice regarding the identification and treatment of complications (includes referrals to medical professionals, resources in the community, medical and assistive device prescription)		**20**	
Indicates which therapists should be involved (to what degree and in what manner) in the management of this case		**15**	
Identifies an appropriate referral to a therapist and the referral letter contains the correct amount of information and the purpose of the referral.		**10**	
Highlights the role the medical professional could play in the absence of a appropriate therapists (e.g. what advise could you give to the patient/family/carers in respect of seating, positioning, swallowing, self-care, etc.)		**10**	
TOTAL		**/100**	

ASSESSMENT OF THE ROTATION

Assessment will be continuous throughout the rotation and there will be a final assessment at the end of the rotation. There will be no end of year exam. You must pass the clinical rotation as a whole (≥50%) in order to pass the year. If you fail to obtain a pass mark in this rotation you will have to pass an additional examination at the end of the year before you can proceed to the following year. Your mark for the clinical rotation as a whole will be made up as follows:

Rural rehabilitation patient study	15%
Portfolio assessment (excluding Rehabilitation patient studies):	
Community Health Project	25%
Patient Study	30%
Site coordinator assessment	30%
Total	100%

ASSESSMENT OF THE ROTATION

PATIENT INTERVIEW AND REHABILITATION PATIENT STUDY

Your mark for the rural rehabilitation patient study will be made up as follows:
Simulated patient interview marked according to schedule as outlined in Learning Opportunity 1. This includes 10% of the marks allocated to the written referral letter. Any other written material submitted will not be marked. All group members are to participate in the interview. One referral letter is submitted per group. All group members will receive the same mark.

Appendix 4: Late phase study guide extract

UNIVERSITY OF STELLENBOSCH

MB, ChB
Phase IV - Late Clinical Rotations
• 2010

Year 5 - 6

Health and Disease in a Rural Community
Part of Clinical Rotations 52396 541/15180 678

Contributing Departments:
Community Health, Discipline of Family Medicine & Primary Care and the Centre for Rehabilitation Studies

INTRODUCTION

Welcome again to Family Medicine & Primary Care, Community Health and Rehabilitation Studies. There will be no departmental boundaries in order to make the clinical rotation as holistic as possible. This guide gives provides key information to understand what is expected of you and how you will be assessed.

The aim, objectives and outcomes:

AIM

This is to build on the early and middle phase clinical modules, and prepare you for your role in primary health during your years of internship, community service and possibly the rest of your career. To this end the following goals and outcomes are listed below:

GOALS

- To function as a **primary care practitioner**, within a district health system, in a rural and urban context.

- To understand the **importance and functioning of primary health care** in a developing country.
- To become aware of your **potential personal contribution** to improve the health status of South Africans.
- To recognise your personal and professional **limitations** and develop the necessary skills to deal with this.
- To develop sensitivity to **cultural and contextual issues.**
- To become aware of the importance of continuing **professional development** throughout your career.

OUTCOMES

By the end of this clinical module you should be able to:

1. Identify and manage health problems using a **clinical, individual and contextual** approach.
2. Manage **common conditions** in primary care with appropriate diagnostic tests and rational prescribing, involving the primary health care team and community-based resources, as well appropriate referrals to other levels of care.
3. Develop approaches to **clinical and public health related** problems in primary care by appropriate use of scientific literature.
4. Identify and act upon opportunities for **health promotion** and disease prevention (a) during consultations with patients, (b) in the health facility or (c) within the community.
5. Identify, analyse and propose solutions to **ethical and legal dilemmas** that arise in primary care.
6. Demonstrate effective **communication skills** with patients, health workers and community members.
7. Identify, investigate and propose appropriate solutions to **problems in the community** that impact negatively on health status.
8. Identify and describe **health related resources** available to a specific community.
9. Identify and respect the roles of the different members of the **primary health care team.**
10. Describe the roles of the different members of the **primary health care team** and demonstrate your ability to function effectively in a team.

BACKGROUND AND PRIOR KNOWLEDGE

This clinical module builds on the early and middle phases and especially the clinical modules in Family Medicine, Community Health and Rehabilitation in the community centres and district hospitals The knowledge and skills obtained in all theoretical modules will be utilised.

CONTACT NAMES AND NUMBERS

Module managers

Undergraduate program manager:

Prof. Michael Pather 0219389171

Clinical module manager:

Dr Strini Govender 0219389661
083 808716

Undergraduate program secretary:

Ms Freda Valentine 0219389109

Rehabilitation

Centre for Rehabilitation Studies Faculty of Health Sciences, Tygerberg Campus:

Ms Gubela Mji, Senior Lecturer, Departmental Chairperson 0219389090
Ms Siphokazi Gcaza, Senior Lecturer 0219389615
Ms Refiloe Mothabeng, Secretary 0219389090
Dr H Sammons 0213702358
/2366
0842501328

Bishop Lavis Rehabilitation Centre 0219346315

Physiotherapist: Ms L Kleinbeist
OT: Ms Maatje Kloppers Paarl Rehabilitation Centre (Elangeni) 0218721711
X 2343
Occupational therapist: Shaynela Abrahams
Speech Therapist: Liza Rloi
Physiotherapist: Faeeka Toffar

IDTL Facilitators

Bishop Lavis – Maria van Zyl 0848118295
drwp@telkomsa.net
Elangeni – Louise Fouche 0793442022
louise.fouche@gmail.com
Hermanus – Colleen Baker 0769884885
cbaker@telkomsa.net
Brewelskloof, Worcester – Prof H. Conradie 0828557568
hoffie@breede.co.za

Clinical Teaching sites

Site B Khayelitsha CHC.	0213613470
Elsies River CHC	0219310211
Kraaifontein CHC	0219870080
Eben Dönges Hospital	0233581100
TC Newman CHC, Paarl East	0218721711
Helderberg Hospital	0218504700
Delft CHC	0219542235
Stellenbosch Hospital	0218870310
Madwaleni	0842403857
2 Millitary	0217996152
Caledon Hospital	0282121070
Ceres Hospital	0233162270
SwellendamHospital	0285141770
Swartland Hospital	0224821161
Hermanus Hospital	0283161166
Robertson Hospital	0236268040
Elangeni Rehabilitation Centre	0218721711
Western Cape Rehabilitation Centre	0213702316

ASSESSMENT

Assessment will be continuous throughout the clinical module and there will be a final assessment at the end of the semester. Your mark for the clinical module as a whole will be made up as follows:

CONTINUOUS ASSESSMENT MARK

Mode of Assessment:	**%**
Work Rehabilitation task	5%
Physical rehabilitation task	5%
Community project	25%
Evidence Based Medicine	10%
Clinical Portfolio (including critical appraisal task and ethics study)	35%
Continuous Tutor assessment	10%
MCQ Examination	10%
Total	**100%**

The Web CT based MCQ Examination will be based on the topics that you need to cover as outlined in the study guide, the Handbook of Family Medicine and the other aspects covered during your rotation such as Community Health, Environment Health, Rehabilitation Medicine, EBM, Primary Care based Emergency Medicine and Ethics.

If critical incidents of attitude occur students may fail (please refer Profile of Stellenbosch Doctor)

FINAL MARK

FINAL MARK = CLASS MARK (50%) + EXAMINATION MARK (50%)

- According to the Examination rules for the Late Phase the following applies:
- A class mark of 40% must be attained for entry to examination.
- Class Mark = Weighted Average of the mark attained during the Early, Middle and Late Phase of the Clinical Rotation i.e. in the ratio of 4:2:5 out of 11 representing the number of weeks spent in each phase in the rotation.
- Examination Mark = Mark attained in the Final Clinical Examination (will include an external examiner) in April and November of the MB ChB VI year.
- If the Examination mark is >50% then you cannot award <50% for the Final mark (the final mark being class mark + examination mark).
- According to the HPCSA if a student fails the Final Clinical Examination then a Final mark <50% must be awarded.

HEALTH, DISEASE AND DISABILITY IN A COMMUNITY

You will be exposed to a variety of learning opportunities,including community orientated health care . Much of your learning will be experiential. Your tutor at the site will guide you. You will hopefully note how health care is taken to the people. Health promotive activities will play an important role. Always take heed of your patients' expectations, fears, anxiety and attitudes towards illness i.e. a Three stage assessment.

The aims and outcomes (outlined previously) will guide your learning needs.

You are required to participate in the following activities:

- Supervised consultations.
- Supervised home visit.
- Observing and performing procedures under supervision
- Visits to non-governmental organisations .
- Participation in emergency care including after hour calls and weekend calls. **The after hour calls must be arranged with your tutor.** At certain sites it may be possible to do short calls i.e. till 23h00 during a weekday as opposed to 12hour calls over a weekend. You are expected to

participate in a minimum of 4 calls over the 5 week period This needs to work out to 4, 12 hour calls.

- Working with allied medical professionals.
- Practice your communication skills in simulated office orals(SOOs), this may be Video recorded at the site.
- Prepare and Participate in tutorials
- Perform a community project as a team or submit a research protocol
- EBM – Reading and interpretation of literature and making an oral presentation to your tutor.
- Physical and work rehabilitation of patients.
- Completing a 'mock' Disability Grant form.
- Write up 3 patient studies and one Ethics study

LEARNING OPPORTUNITY 6: PHYSICAL REHABILITATION

AIM

To participate in the management by the interdisciplinary team.
To observe how other team members assess and manage problems related to disability

OUTCOMES

At the end of these two sessions you will be able to

1. Comprehensively identify current problems in the person with a disability.
2. Identify current and potential complications.
3. Draw up a management plan for the problems identified in 1 and 2, through the use of appropriate diagnostic tests, rational prescribing, referral to appropriate team members, community based resources and other levels of care.
4. Describe the role and interaction of different members of the inter-disciplinary team in managing this patient.
5. Fulfil outcomes related to interdisciplinary work. See following

Interdisciplinary outcomes

1. To obtain knowledge and insight into the role and skills of other disciplines in order to:
   a. Appreciate and understand the role of other professions
   b. Know own personal/professional strengths and limitations
   c. Know when to make relevant referral for the benefit of the patient/client
2. To break down the stereotyping of other disciplines and to develop trust and respect for input from other professional persons
3. To improve patient/client care by:
   a. More comprehensive management
   b. The reduction of duplication of treatment procedures for the benefit of the patient/client (rather than only to reduce costs)
4. To acknowledge that the meaningful contribution of the various professions at each stage in the recovery process, will be linked and be to the benefit of the patient/client.
5. To develop an understanding of the 'humanness' of the patient/client and a willingness to take holistic responsibility for the patient - more so than within the limits of 'defined' professional role (caring).
6. To develop the necessary skills and attitude to function as a team and a team member representing your profession.

7. To create the opportunity for inter-disciplinary communication during the various teaching and learning discussions.
8. To communicate with patients on their entry level and identify / establish the patient's norms and expectations.
9. To demonstrate professional behaviour towards the client, client's family, interdisciplinary team members, the facilitator and all staff members encountered at the Rehabilitation centres.

BACKGROUND KNOWLEDGE

This rotation builds on all information acquired during the early and the middle clinical rotations and the theoretical block (Health and Disease in the Community)

- Ethical aspects
- Biopsychosocial Model
- Consultation/conducting an interview
- Roles of the different healthcare workers
- Differences and similarities in the roles and functions of the different health care workers
- Teamwork – types of teams, functioning in groups, group dynamics
- Interpersonal style, behaviour, leadership and diversity
- Communication – verbal, written, computer

RESOURCES

Notes supplied by Rehabilitation in early and middle phases and theoretical block.

ANYTHING SPECIFIC YOU SHOULD DO?

The group will be divided into subgroups. Each group will rotate **in turn** through Bishop Lavis or Paarl. Please do not swop out your date or else you will miss your opportunity

SESSION 1 (PHYSICAL REHABILITATION)

- Report to the Bishop Lavis Rehabilitation Centre or Elangeni Rehabilitation Centre at Paarl, on the Wednesday afternoon at 14h00 as allocated in the introductory session.
- You will meet the facilitator at the site who will explain to you how the session will run
- Each student/group of students will receive a patient at a Community Rehabilitation Centre (Bishop Lavis or Paarl)
- Each student/group of students must take a history and do a physical and functional evaluation of the patient as part of an interdisciplinary team, making use of the Bio Psycho Social Model.
- Each student will observe the patient as he/she attends evaluation/therapy sessions with therapists/assistants/students.
- Each student will participate in an interdisciplinary discussion supervised by a facilitator and draw up a combined management plan of this patient with the therapist/students managing the case.

- Each student must write up a written report according to the marking schedule, however, if the client was not present at the facilitation, the second report, which is available from Freda Valentine, should be used.
- Each student must complete a **questionnaire reflecting** on the session (see pg 30).
- Please indicate clearly on both documents the site, date of your session and year group.
- These two documents are to be sent electronically to the respective facilitators on the Monday following the Interdisciplinary learning opportunity. Clearly mark each with your name and student number.
- On the fifth week of the rotation a facilitation meeting held at the Tygerberg Medical Campus must be attended. During the session the students will learn from each others experiences and at the same time additional learning outcomes not met during the Interdisciplinary learning opportunity, will be discussed.

ASSESSMENT OF PHYSICAL REHABILITATION

You will receive a mark for the session at Bishop Lavis/Paarl according to the following marking schedule:

ASSESSMENT SCHEDULE FOR PHYSICAL REHABILITATION

Candidate	Student Number	e-mail
Date	Examiner	

SCORING SCALE

Poor	Below average	Average	Above average	Excellent
1-2	3-4	5-6	7-8	9-10

Required Standard	Weight %	Score	Office use
Comprehensively applies the principles of the goal orientated management plan in identifying current problems and potential complications. List the problems, complications and long term management plans	20		
Suggests appropriate referrals to therapists and describes the way in which the therapist would manage the problem/potential complication	10		
Suggests appropriate referrals to medical professionals if necessary. Suggests appropriate investigations if necessary.	10		
Suggests appropriate referrals to other resources in the community as necessary. If no intervention is indicated, explain briefly why?	5		
Suggests appropriate medical prescription as required. Write out prescription in full.	5		
Suggests appropriate prescription of assistive devices as indicated. Write out specifically what needs to be prescribed. (Refer to Mid-phase notes)	10		
The reflection shows insight into the functioning of the team as indicated by the questions posed	40		
	100		

Signature of examiner:

Name:……Student No:……..

Site……Date……...

Reflection on team case discussion

1. Was teamwork necessary in the management of this patient?

2. Give a reason for your answer.

3. Was there mutual discussion or did one particular person or discipline monopolize the discussion?

4. Do you feel that what you had to say was interpreted accurately by the other disciplines or not?

5. How did you contribute towards the functioning of the team?

6. Were there situations where your opinions were in direct conflict with those of other colleagues or disciplines? Were there non-verbal undercurrents? If so how were these differences managed in the team setup.

7. How did you feel about being placed into this situation? What were your feelings/ frustrations /uncertainties during the team discussion?

8. How can you become a more meaningful team member?

9. What have you learnt from this exposure that you can apply to your own service?

LEARNING OPPORTUNITY 7: WORK REHABILITATION

AIM

To evaluate a patient with a physical disability and to ascertain their ability to work in the open labour market

OUTCOMES

At the end of these sessions you will be able to:

1. Assess the person with a disability with regard to functional outcome and work potential
2. Assess if management of the impairment is optimal
3. Decide on the suitability of a work evaluation referral in evaluating a disabled person's ability to work
4. Complete a disability form according to prescribed guidelines (Refer to theory block notes)
5. Make suggestions for further work rehabilitation (after assessment) in order to integrate a person with a disability into the protected or open labour market if indicated

BACKGROUND KNOWLEDGE

This rotation builds on all information acquired during the early and the middle clinical rotations and the theoretical block (Health and Disease in the Community)

RESOURCES

Notes supplied by Rehabilitation in early and middle phase and theoretical block.

ANYTHING SPECIFIC YOU SHOULD DO?

Patients will be seen on an on going basis at the community health Centre. Any patient that presents with a disability grant form is an opportunity for discussion with your tutor. Alternatively you must approach the social services (disability grant) doctor who does all the DG application at the CHC. Your last resort is to interview any patient with any chronic disorder. Students at the Military Hospital should choose a patient from the outpatient clinic.

SESSION 1 (WORK REHABILITATION)

- Each student must select a patient arriving with a disability grant form
- Each student must take a history and do a physical and functional evaluation of the patient
- Each student will discuss the management plan of this patient with the site co-ordinator
- Each student will discuss the reasoning process as to qualification for a disability grant with their site co-ordinator
- Each student will decide if they find the patient fit for open labour or protected labour
- At the introductory session the group will be divided into subgroups. Each subgroup will be given a date when they will visit the WCRC to discuss their cases.
- Before attending this session each student must:

    a. Have revised the lecture notes
    b. Have evaluated a patient
    c. Completed the DG form in pencil.

- After this session each student will complete a disability grant form. Information on this form must cover all facets as outlined in the marking schedule. (Note marks will be allocated as to what information is on the disability grant form only) A copy of the disability grant form will be provided at the introductory session. This must be completed by the student and not the site co-ordinator
- The disability grant must be handed into Family Medicine by the end of the five week rotation.

ASSESSMENT SCHEDULE FOR WORK REHABILITATION

You will be assessed on the Disability Grant form completed.

The Clinical supervisor will mark the completed disability grant form according to the following schedule

Candidate	Student Number	E-mail
Date	Examiner	

SCORING SCALE

Poor	Below average	Average	Above average	Excellent
1-2	3-4	5-6	7-8	7-8

Required Standard	Weight %	Score	Office use
Complies with the administrative requirements of completing the form. This form does not go to the department of Social Services. Please complete it as if you were the treating Doctor.	20		
Indicates the impact of the impairment on the person's functional ability	20		
Indicates how requirements for open labour market are/are not met	10		
Suggests appropriate interventions (investigation, full prescription, referral)	20		
Indicates person's future work prognosis	10		
Suitably indicates the time period/permanence of the disability if the client is unfit for open labour. Front and back page must correlate.	10		
Refer to the need for occupational therapy intervention to integrate the person with a disability into the work environment.	10		
	100		

Signature of examiner:

Appendix 5: Theory block study guide extract

UNIVERSITY OF STELLENBOSCH

MB, ChB
Phase III – Theoretical Modules
2010

Year 5

Health and Disease
in Communities
52450 511 (Part II)

52450 511

INTRODUCTION

Welcome to the 2nd part of the Module: Health and Disease in the Community. The 1st part, which is presented at the end of your 4th year, concentrated mainly on aspects of Medical Sociology, alternative medicine, socio-economic factors in health, health care delivery in the public sector and the burden of chronic diseases on communities.

In the 2nd part of the module you will be exposed to the theoretical background of no less than 11 different themes. Theoretically speaking it will be possible, to some degree, to find a relationship between all 11 themes in the class room. This will however be artificial. Each of these themes, together with those offered in Part 1 of the Module, in fact provides a relevant piece of information required to build the bigger picture regarding "Health and Disease in the Community". Some of the topics, for example "Child care as a Priority program" and "Rehabilitation of the Physically Impaired Person", deals with a few of the system based theoretical modules that have already been covered. This is thus the ideal opportunity to supply you with the integrated “bigger” picture with regards to the themes.

The importance of epidemiology is again emphasized in the module. The ability to think epidemiologically in the 21st century is important for every doctor and is one of the “golden threads” in the new curriculum.

Something that may trouble you is the fact that a theme is not always dealt with within a specific time slot. Logistical requirements (lecture availability etc.) actually determine the distribution of the themes in the Module.

Pharmacology lectures will also be accommodated in the 4 weeks. It is not necessarily relevant to the content of the rest of the 4 week block, and is a temporary arrangement. Pharmacology will also prepare their own study guide.

In conclusion, I would just like to remind you that this Module in its entirety will provide the theoretical foundation for your understanding of the environment within which you will practice medicine. Experience, learn and enjoy!

MODULE OBJECTIVES (PART 1 AND 2)

During this module, you will be exposed to various aspects illustrating the concept "Health and Disease in the Community" and in this way you will be provided with sufficient knowledge and skills to ensure a holistic management of the individual/community related health anomalies.

Rather than building a lot of vague objectives around the above-mentioned overall objective, we will rather concentrate on establishing more genuine objectives for each theme that will be covered. The contributions of each theme to the above-named objective must actually be recognized by you. Only then will you be able to conceptualize the “bigger picture”. At the end of each theme ask yourself the question: ”What contribution will the knowledge imparted on me during this theme make to change my future management of patients from an individual, family and community perspective?”

LIST OF CONTACT PEOPLE

1.	Dr Sydney Carstens (Chairperson)	Tel. 938 9206	e-mail: sec@sun.ac.za
2.	Ms Siphokazi Gcaza	Tel. 938 9615	e-pmail:sgcaza@sun.ac.za

RESOURCES

Because you are confronted with such a wide variety of themes, we have decided to supply resources per theme.

ASSESSMENT

Part 2 – assessment will consist of a class test (29 January 2010) that will be written on the last day of the module. The contents of the test will cover all topics included in Part 2 of the module (last 4 weeks), including the Pharmacology lectures and will be outcomes driven.

The mark achieved for the Part 1 assessment will contribute one-fifth of the total class mark for the Module and the assessment for Part 2 will contribute the remaining four-fifths. In addition to the class test, there will also be a **Module-examination** (examination mark) that will take place on

11 May 2010.

All work covered in the 5 weeks can be examined.

CLASS TEST

Time: 09h00 – 12h00
Type: Written
Marks: 150 marks

EXAMINATION

Time: Divided into two groups
Type: Written and WebCT
Marks: 150 marks

THEME 4:
REHABILITATION OF THE PHYSICALLY DISABLED PERSON

THEME AIMS

At the end of this theme the student must have in-depth knowledge of:

1. *The range of problems and complications that persons with disabilities are subject to in general*
2. *Which problems and complications are most likely to present in the most common impairing conditions*
3. *Treatment modalities and resources available to the person with a disability in order to manage these problems and complications*
4. *How to access these resources*
5. *How to utilize these resources in the holistic management of a person with a disability*
6. *Advice to be offered in the absence of appropriate resource*

OVERVIEW OF THE THEME

Session	Date	Activity	Subject	Lecturer
1	15/01/2010 08:00	Lecture with Case studies and discussion	Introduction to problem identification in a person with a disability	
2	15/01/2010 09:00	Lecture	Medical problems	
3	15/01/2010 10:00	Directed self study	Pain	
4	15/01/2010 11:00	Lecture	Nursing, pressure care, bladder and bowel management	
5	15/01/2010 13:00	Lecture		
6	15/01/2010 14:00	Lecture and demonstration	Visual Impairment	
7	18/01/2010 08:00	Lecture	Sexuality	
8	18/01/2010 09:00	Lecture	Social work	
9	18/01/2010 10:00	Lecture	Occupational therapy and Physiotherapy	
10	18/01/2010 11:00	Lecture	Community integration, sport, recreation and leisure	
11	18/01/2010 13:00	Lecture	Work rehabilitation, Employment Equity	
12	18/01/2010 14:00	Lecture	Disability grant assessment, financial and legal aspects	
13	19/01/2010 08:00	Lecture	Clinical psychology and behaviour management	
14	19/01/2010 09:00	Lecture	Cognition, perception and brain injury	
15	19/01/2010	Lecture	Mobility assistive	

	10:00		devices/Driving	
16	19/01/2010 11:00	Lecture	Speech therapy	
17	19/01/2010 13:00	Lecture	Communication, feeding and swallowing	
18	19/01/2010 14:00	Lecture	Hearing impairment	
19	20/01/2010 08:00	Lecture	Impact of disability on development of the child	
20	20/01/2010 09:00	Lecture and demonstration	Interdisciplinary functioning	
21	20/01/2010 10:00	Lecture	Spinal Cord Injury/Disease	
22	20/01/2010 11:00	Lecture	CVA/Head injury	
23	20/01/2010 13:00	Lecture	Amputations	

RESOURCES

1. Lecture notes from early phase practical rotation in Rehabilitation (3rd year)
2. Lecture notes from Phase III Neuro Sciences Module, Theme 13, Session 1 (Principles of Rehabilitation)

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 1: INTRODUCTION TO PROBLEM IDENTIFICATION IN THE PERSON WITH A DISABILITY

OUTCOMES

At the end of this session you will be able to:

1. Identify the problems/complications common to persons with disabilities in a case study
2. Identify resources to manage each problem area
3. Understand how this ties in with the bio-psych-social approach, the 3-stage assessment, and the international classification of function (impairment, activity limitation and participation restriction)
4. Understand how a team would help you manage a person with a disability (directly and indirectly)
5. Be able to resource rehabilitation services (private and state) if you are working in the hospital or in the community (urban and/or rural)

RESOURCES

Lecture and case study discussion

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Refer to III year notes

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 2: MEDICAL PROBLEMS

OUTCOMES

At the end of this session you will be able to:

1. Identify potential complications in a person with a disability in a case study
2. Manage the medical problems common to persons with disabilities (including diagnosis and treatment)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Refer to pharmacology and other relevant lectures in other modules

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 3: PAIN

OUTCOMES

At the end of this session you will be able to:

1. Describe the impact of chronic pain on a person
2. List what factors reinforce chronic pain
3. List pharmacological methods of treating chronic pain
4. List non-pharmacological methods of treating chronic pain

RESOURCES

www.painonline.org/WhoGets.htm (Doctors corner)
www.update-software.com/abstracts%200101/ab001133.htm

Search under the subject pain: hospicenet website

www.hospicenet.org/html/what
www.medsch.wisc.educ/painpolicy/domestic/model.htm

Any textbook or handbook on rehabilitation

ANYTHING SPECIFIC THAT YOU SHOULD DO?

During this session you will be given an opportunity to go to the library or Gerga to research the above topics. You should have one page of information on each aspect. You may work in groups of four and share your information.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 4 AND 5: NURSING, PRESSURE CARE AND BLADDER AND BOWEL MANAGEMENT

OUTCOMES

At the end of this session you will be able to:

1. Understand the role of the *nursing* professional in the management of a person with a disability
2. List the reasons for referring a person with a disability to a nurse professional
3. Be able to resource nursing services (private and state) if you are working in the hospital or in the community (urban and rural)
4. Give basic advice to a patient on prevention/management of problems, usually treated by the nurse professional, in the absence of such a professional
5. Understand how *pressure sores* develop
6. Advise a patient how to prevent pressure sores
7. Know what treatment modalities are available to treat a patient with a pressure sore
8. Manage a patient with pressure sores (including referral)
9. Know the most common *bladder and bowel* problems related to specific impairments
10. Advise a patient how to prevent such problems
11. Know what treatment modalities are available to diagnose and treat such problems
12. Manage a patient with bladder and bowel problems (including referral)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 6: VISUAL IMPAIRMENT

OUTCOMES

At the end of this session you will be able to:

1. Approach a patient with visual impairment in the appropriate manner
2. Know what problems persons with visual impairment experience
3. Be able to resource rehabilitation services (private and state) for a person with visual impairment if you are working in the hospital or in the community (urban and rural)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 7: SEXUALITY

OUTCOMES

At the end of this session you will be able to:

1. Know what sexual problems present in specific impairments
2. Know what treatment modalities are available for such problems
3. Manage a person with sexual problems including advice and referral

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 8: SOCIAL WORK

OUTCOMES

At the end of this session you will be able to:

1. Understand the socio-economic impact of disability
2. Understand the importance of patient/family/carer education and compliance
3. Understand why patients become non compliant
4. Understand the role of the social worker in the management of a person with a disability
5. List the reasons for referring a patient to a social worker
6. Be able to resource social worker services (private and state) if you are working in the hospital or in the community (urban and rural)
7. Give basic advice to a patient on prevention/management of problems, usually treated by the social worker, in the absence of such a professional

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 9: OCCUPATIONAL THERAPY AND PHYSIOTHERAPY

OUTCOMES

At the end of this session you will be able to:

1. Understand the role of the occupational therapist and physiotherapist in the management of a person with a disability
2. List the reasons for referring a patient to an occupational therapist or physiotherapist
3. Understand how an occupational therapist or physiotherapist uses functional activities to treat a person with an impairment

4. Understand how splints, pressure garments and assistive devices are used to reduce the impact of impairment
5. Be able to resource occupational or physiotherapy services (private and state) if you are working in the hospital or in the community (urban and rural)
6. Give basic advice to a patient on prevention/management of problems, usually treated by the occupational therapist or physiotherapist, in the absence of such a professional e.g. painful shoulder, hyper tonicity, hypo tonicity, hyperextension of the knee, positioning, hip replacements

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 10: COMMUNITY INTEGRATION, SPORT, RECREATION, LEISURE

OUTCOMES

At the end of this session you will be able to:

1. Understand the benefits of leisure activity management in a person with a disability
2. Know what sport and recreational resources are available to persons with disability in the hospital and in the community (urban and rural/ public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 11: WORK REHABILITATION, EMPLOYMENT EQUITY

OUTCOMES

At the end of this session you will be able to:

1. List the requirements for employment in the open labour market
2. List the requirements for employment in the protected labour market
3. Describe the process of work rehabilitation
4. Access work rehabilitation if you are working in the hospital, at primary health care and the community (urban and rural/ public and private)
5. Outline the rights of a person with a disability in the light of the Employment Equity Act
6. Describe what is meant by reasonable accommodation
7. Make suggestions for reasonable accommodation in a case study

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 12: DISABILITY GRANT APPLICATION, FINANCIAL AND LEGAL ASPECTS

OUTCOMES

At the end of this session you will be able to:

1. List what financial and legal resources are available to person with a disability
2. Access these resources if you are working in the hospital and in the community (urban and rural/ public and private)
3. Know the possible financial outcomes of these claims
4. Describe the process and regulations of applying for a disability grant
5. Describe how one would assess a patient's functional abilities and inabilities in order to assess work potential
6. Describe the guidelines for qualification for a disability grant for specific impairments
7. Complete a disability grant form and know how to convey the necessary information on forms such as the MMF1 for RAF, Medical insurance
8. List the reasons for referring a person with a disability to a lawyer

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 13: CLINICAL PSYCHOLOGY AND BEHAVIOUR MANAGEMENT

OUTCOMES

At the end of this session you will be able to:

1. Understand the role of the clinical psychologist in the management of a person with a disability
2. List the reasons for referring a patient to a clinical psychologist
3. Be able to resource clinical psychology services (private and state) if you are working in the hospital or in the community (urban and rural)
4. Describe the principles and techniques used in modifying the unacceptable behaviour of a patient with brain injury
5. Describe the type of patient that would benefit from behaviour modification therapy
6. Give basic advice to a patient on prevention/management of problems, usually treated by the clinical psychologist, in the absence of such a professional

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 14: COGNITION, PERCEPTION AND BRAIN INJURY

OUTCOMES

At the end of this session you will be able to:

1. Know what cognitive and perceptual problems persons with disabilities are subject to, especially the person with brain injury (CVA, Head Injury)
2. List treatment modalities available for such problems
3. Manage a person with cognitive and/or perceptual problems including advice and referral
4. Understand the interaction between the cognitive/perceptual impairments and the physical impairments in determining rehabilitation outcome

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 15: MOBILITY ASSISTIVE DEVICES/DRIVING

OUTCOMES

At the end of this session you will be able to:

1. List the complications of poor positioning
2. List the choices for the various components in ordering a wheelchair and a cushion in order to establish optimal seating
3. Be able to prescribe a mobility assistive device
4. Access mobility assistive devices if you are working in the hospital and in the community (urban and rural/ public and private)
5. List the regulations pertaining to the person with a disability and driving
6. List the ways in which a vehicle can be adapted to accommodate a driver with a disability
7. Access driving rehabilitation if you are working in the hospital and in the community (urban and rural/ public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 16: SPEECH THERAPY

OUTCOMES

At the end of this session you will be able to:

1. Understand the role of the speech therapist in the management of a person with a disability
2. List the reasons for referring a patient to a speech therapist
3. Access the services of the speech therapist if you are working in the hospital and in the community (urban and rural/ public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 17: COMMUNICATION, FEEDING AND SWALLOWING

OUTCOMES

At the end of this session you will be able to:

1. Know what speech and swallowing problems persons with disabilities experience
2. Understand the reason why patients develop speech and swallowing problems
3. Know what treatment modalities are available to treat a patient with speech and swallowing problems

4. Be able to give basic advice to a patient on prevention/management of problems, usually treated by the speech therapist, in the absence of such a professional e.g. dysarthria, a/dysphasia, choking, inability to swallow

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 18: HEARING IMPAIRMENT

OUTCOMES

At the end of this session you will be able to:

1. Approach a patient with hearing impairment in the appropriate manner
2. Know what problems persons with hearing impairment experience
3. Know what resources are available to a person with hearing impairment in the hospital, at primary health care level and the community (urban and rural/ public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 19: THE IMPACT OF PHYSICAL DISABILITY ON THE DEVELOPMENT OF THE CHILD

OUTCOMES

At the end of this session you will be able to:

1. List common disabling problems/conditions in the child (congenital and acquired)

2. Describe the impact of physical disability on the development of the child (e.g. physical, social and cognitive/perceptual aspects)
3. Describe the role of recreational activities and play in the normal development and rehabilitation of the child
4. List what resources are available to a child with a physical or mental impairment in the hospital and in the community (urban and rural/ public and private)
5. Describe what financial resources are available to a disabled child and their carers

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 20: INTERDISCIPLINARY FUNCTIONING

OUTCOMES

At the end of this session you will be able to:

1. Understand how the interdisciplinary team manages a person with a disability using a patient with a CVA as an example

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 21: SPINAL CORD INJURY/DISEASE

OUTCOMES

At the end of this session you will be able to:

1. Outline the relevant anatomy of the Spinal Cord
2. List the common problems occurring in a patient with Spinal Cord pathology (in the post acute and rehabilitation phases)
3. Manage these problems
4. Prevent potential complications
5. Manage these complications should they occur
6. Predict the functional/outcome prognosis
7. Know what resources are available to a person with a SCI in the hospital, at primary health care and the community (urban and rural/ public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 22: CVA, HEAD INJURY

OUTCOMES

At the end of this session you will be able to:

1. Outline the relevant anatomy of the brain
2. List the common problems occurring in a patient with a CVA, Head Injury (in the post acute and rehabilitation phases)
3. Manage these problems
4. Prevent potential complications
5. Manage these complications should they occur
6. Predict the functional/outcome prognosis
7. Know what resources are available to a person with a CVA, Head Injury in the hospital, at primary health care and the community (urban and rural/ public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class.

THEME 4: REHABILITATION OF THE PHYSICALLY DISABLED

SESSION 23: AMPUTATIONS

OUTCOMES

At the end of this session you will be able to:

1. List the common problems occurring in a patient with an amputation (in the post acute and rehabilitation phases)
2. Manage these problems
3. Prevent potential complications
4. Manage these complications should they occur
5. Assess a patient for prescription of a prosthesis
6. Manage the patient who is not a suitable candidate for a prosthesis
7. Know what types of prostheses are available for different amputations
8. Be able to write a prescription for a prosthesis or orthosis
9. Describe the process of ordering a device
10. Access the services of the orthotist/prosthetist if you are working in the hospital, at primary health care and the community (urban and rural / public and private)

RESOURCES

Lecture

ANYTHING SPECIFIC THAT YOU SHOULD DO?

Yes, attend class!

Appendix 6a: Association of the areas of the WFME standards with educational models sourced from the literature

WFME	CHE	GMC	SPICES	PRISMS	21st Century innovations	Hardens 10 Questions
Mission and Objectives	Programme input (design), Output and impact			Product focussed	Outcome based	Needs related to product Aims and objectives
Educational programme (including linkage with the health system)	Teaching and learning strategy	Curricula (8-15) Reflecting current society (47-52)	Systemic curriculum planning Problem Based Integrated Community orientated Electives	Relevant to students and the community Inter-professional learning	Social responsibility Problem based Integrated Community orientated Core options Clinical and communication skills	Content Organisation Communication thereof Educational strategies Teaching methods
Assessment methods	Student assessment	Curricula (10) Assessment (17-31)			Valid and standardised	Assessments
Student selection, Support and representation	Student recruitment, admission selection, retention and throughput rates	Choosing between candidates (5-7) Fitness to practise (32,33)	Student centred	Smaller classes	Student centred Student input	
Academic staff	Staffing including development	Assessment (27) Teaching, training and Support (34-38) Resources (41)			Educational leadership	

Training resources	Infrastructure and library resources	Resources (39-42)		Training at multi-site locations		
Programme evaluation		Curriculums (16) Quality assurance (43-46)				
University administration	Support staff and programme administration			Shorter courses	Curricular committees Budgetary responsibility	Educational environment Management of the process
Continuous renewal	User surveys and impact studies					

References:

WFME (WFME website accessed 24/08/2007)

CHE (HEQC, 2004)

GMC (GMC website accessed 24/08/2007). The numbers in the table above refer to the numbered principles in the reference article

SPICES (Bligh, Prideaux & Parsell, 2001)

PRISMS (Bligh, Prideaux & Parsell, 2001)

21st Century innovations (Karle, 2004)

Harden's 10 questions (Dent & Harden, 2005)

Appendix 6b: List of Indicators, population samples and compliance of the Rehabilitation programme

Below is a list of statements which is the set of indicators developed for this study. They are grouped according to the nine areas of the WFME global standards for medical education. The focus of each indicator is highlighted. They are worded in a generic manner so they are applicable to any rehabilitation programme in SA. The sample from which the data is to be obtained is bulleted in the third column. The compliance of the US Rehabilitation programme according to the results of this study and the interpretation thereof is listed in the last column.

Area	Indicator or Standard	Sample	Compliance
1	**Mission and objectives.** The faculty and programme objectives and competencies are aligned.		
1.1	The rehabilitation programme objectives (to produce a doctor who can manage persons with disabilities within the primary health care setting) and competencies (as contained in the study guides) align with the faculty mission (or "Profile of the Stellenbosch doctor").	• FHS Management • Module chairpersons • CRS management	Compliant
1.2	If the department delivering the rehabilitation programme (CRS, SU) a) has a mission, b) this aligns with the programme objective and competencies. If there is a mission statement, this should be stated.	• CRS management	Compliant
1.3	The objective and competencies are communicated to rehabilitation programme lecturers, facilitators, site co-ordinators and assessors.	• Module chairpersons • CRS management • Lecturers, facilitators, site co-ordinators and assessors	Compliant
1.4	The objective and competencies are communicated to students (e.g. in the study guides and introduction sessions).	• Module chairpersons • CRS management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant

2a	**Educational programme.** Educational methods or activities that are considered internationally to be appropriate (such as lectures, patient contacts, case discussions, contact with community resources, simulation of a disability, exposure to teamwork, teaching by doctors, therapists and patients, reflection on learning activities) and allow for the achievement of the rehabilitation objective and competencies. (2.1 – 2.20). Critical methods are considered mandatory for a rehabilitation training programme.		
2.1	A variety of educational methods or activities are used.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Non- compliant
2.2	The students are prepared for the educational methods or activities (e.g. in the study guides and introduction sessions).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.3	The study guides clearly (in terms of format and readability) convey all relevant information (objectives, competencies, education methods or activities, sequencing of activities, assessment methods, etc).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.4	The activities are sequenced so that students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7 • Documentation review	Non- compliant
2.5	Students are placed in clinical community rehabilitation settings for rehabilitation programme activities.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant

2.6	Clinical placements a) support and b) do not burden the community rehabilitation resources (e.g. facilities, staff, patients and their carers).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7 • Interdisciplinary team members • Patients	Compliant
2.7	The students are exposed to inter or multi-disciplinary team work a) during rehabilitation programme activities (mandatory) and b) during other programmes in the curriculum (preferred).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Compliant
2.8	The students observe doctors functioning within inter or multi-disciplinary teams a) during the rehabilitation programme (mandatory) and b) during other programmes in the curriculum (preferred).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Non-compliant
2.9	The rehabilitation programme provides an opportunity for students to acknowledge and explore attitudes towards teamwork.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.10	Inter personal communication is addressed during the activities of the rehabilitation programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.11	Medical students socialise with other disciplines formally (e.g. combined educational activities) (mandatory) or informally (e.g. on campus, privately) (preferable).	• FHS Management • Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Compliant

2.12	Students identify with, through observation, the role that general practitioners have in managing persons with disabilities in the community.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7 • Primary Health care practitioners • Rehabilitation doctors • Interdisciplinary team members • Patients	Compliant
2.13	Students are taught to manage persons with disabilities as they move through all levels of the continuum of health care i.e. In primary, secondary and tertiary care In acute, post acute and chronic care, In the public and private sector, In specialised ambulatory (community) and residential (in-patient) rehabilitation settings.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
2.14	Students are given an opportunity to reflect on their personal attitudes to persons with disabilities.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
2.15	Students are required to apply their knowledge of rehabilitation to other medical specialities across the curriculum (preferable).	• FHS Management • Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Compliant
2.16	Students are required to apply knowledge, skills and attitudes acquired in other medical specialities to manage persons with disabilities.	• CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7 • Rehabilitation doctors	Compliant

2.17	Students are made responsible for their own learning through evidence based practice, problem solving, critical thinking and clinical reasoning.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.18	Students draw on learning in basic medical sciences in order to manage persons with disabilities.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.19	There should not be unnecessary repetition of content within a) the rehabilitation programme or b) the MBChB curriculum.	• FHS Management • Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
2.20	Electives in rehabilitation are offered (preferable).	• CRS Management • Student group 7 • Rehabilitation doctors • Interdisciplinary team	Non-compliant
2b	**Educational programme.** The content of the rehabilitation programme is relevant to the clinical environment in which the medical graduates will practice (or primary care setting in SA). (2.21 – 2.25)		
2.21	The definition of disability and rehabilitation is taught in the context of the ICF.	• CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant

2.22	Students are made aware with the health conditions frequently causing disability in their local health context.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7 • Primary Health care practitioners • Rehabilitation doctors • Interdisciplinary team members • Patients	Compliant
2.23	Students are made aware of the bio, psycho and social needs of persons with disabilities in their local health context.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7 • Primary Health care practitioners • Rehabilitation doctors • Interdisciplinary team members • Patients	Compliant
2.24	Students are taught how to manage the bio, psycho and/or social needs of persons with disabilities through a) medical, b) trans disciplinary management, c) inter or multidisciplinary referral and d) use of community resources.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7 • Primary Health care practitioners • Rehabilitation doctors • Interdisciplinary team members	Compliant
2.25	Students are taught a generic approach to disability management so that they can manage any health condition causing disability.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant

3	**Assessment of students**		
3.1	The assessments are valid in that they test the stated objectives.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
3.2	a) Scoring criteria are used to ensure reliability of assessments (to prevent inter and intra assessor variability) and b) global rating scales are used.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant
3.3	A variety of assessment methods are used.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Non-compliant
3.4	The assessment methods are feasible in relation to resources (finances, time, staff, equipment, venue, patients.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
3.5	Standardised patients are used in OSCEs and assess attitudes of students.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
3.6	Understanding rather than recall is assessed.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant

3.7	The students receive feedback on their assessments.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
3.8	The students are tested pre and post exposure to rehabilitation training in order to evaluate gain in knowledge, skills and attitudes during the programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant.
3.9	Students are made aware of the pass requirements.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant
4	**Students**		
4.1	Enrolment of students with disabilities is supported by the faculty (preferable) as is evident by the presence of students with disabilities (insidious or overt) enrolled in the current programme.	• FHS Management • Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7 • Rehabilitation doctors • Patients	Compliant
4.2	Students are exposed to other students with disabilities within the Faculty of Health sciences formally or informally (preferable).	• CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Non-compliant
4.3	Students are satisfied with the various rehabilitation teaching methods.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant

4.4	Students are satisfied with the resources used to deliver the programme (such as the proficiency of staff as clinicians and lecturers and quantity and quality of clinical teaching sites).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
5	**Academic staff** This refers to lecturers, facilitators, site co-ordinators and assessors		
5.1	All disciplines involved in rehabilitation of the disabled (physio-, occupational and speech, therapists, nursing, social workers, clinical psychologists, etc) are involved in the delivery of the programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
5.2	Staff involved with the programme are rewarded in some way e.g. a) monetary, b) academic rewards or recognition, altruistic reward, c) professional stimulation.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Non-compliant
5.3	Staff involved with the rehabilitation programme are not burdened by the programme e.g. competition for clinical or personal time (preparation for lectures or contact session, preparing and marking assessments), incurring of expenses (travel and teaching materials).	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Non-compliant
5.4	Staff a) are trained in educational principles in order to educate, facilitate, site co-ordinate and asses knowledge, skills and attitudes, b) Have clinical proficiency, c) have appropriate attitudes and personal attributes (compassion, objectivity, commitment, humour, communication skills, appreciation of strengths and weaknesses) conducive to lecturing and facilitation. (All are mandatory)	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
5.5	Lecturers, facilitators, site co-ordinators and assessors get feedback on their performance.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Non-compliant

6	**Educational resources**		
6.1	The department delivering the programme has adequate (number and quality) resources (a) staff, b) clinical teaching sites, c) library resources, d) finances, e) equipment) to deliver the programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
6.2	The department delivering the programme allocates resources (financial, human) to the MBChB programme proportionately according to its other activities.	• CRS Management	Compliant
6.3	The programme is costed and has a dedicated budget..	• Faculty management • CRS Management	Compliant
6.4	Patients are involved in delivery of the rehabilitation programme a) as case subjects and b) as experts in disability and rehabilitation (preferable) and this is acceptable to c) patients, students (see indicator 2.14), and other stakeholders.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7 • Patients	Compliant
6.5	Resources are made available for self-directed rehabilitation learning.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
6.6	The department delivering the programme makes use of resources (including IT) available within the faculty to deliver the programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Non-compliant
6.7	There is access to educational expertise to develop the programme.	• CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant
6.8	There is exchange with a) local and b) international universities for the benefit of the programme. (preferable)	• CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant

7	**Programme evaluation**		
7.1	The inputs, processes, outputs (student results) and outcomes of the programme are monitored on an on-going basis.	• CRS Management • Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Documentation review	Compliant
7.2	All stake holders (faculty and departmental management, curriculum committees, programme co-ordinators, students, teachers, public, future employers, etc.) contribute to programme monitoring and evaluation. This includes input into objectives, delivery, content, assessment methods, student selection, staff selection and training, educational resources, evaluation of the programme, governance and administration and review of the programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Non-compliant
7.3	Students give feedback on the content, quantity and quality of teaching, the assessment methods used, sequencing of activities, resources used and a) usefulness, b) achievement of programme objectives and c) achievement of their own expectations of the programme.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Compliant
7.4	Feedback does not overburden students.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 1 & 7	Non-compliant
8	**Governance and administration**		
8.1	The rehabilitation programme is co-ordinated by a committee rather than an individual.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant

8.2	The co-ordinator(s) has (have) a passion for the programme and drive its delivery and development.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant
8.3	There is a good relationship between the department that delivers the programme and rehabilitation services and clinical sites where students are placed.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Compliant
8.4	There is adequate administrative support.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors • Student group 7	Non-compliant
9	**Continuous renewal**		
9.1	The programme is evaluated at pre-determined intervals.	• Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Non- compliant
9.2	The results of these evaluations are presented to the stakeholders as a report and to decision making structures.	• FHS Management • Module chairpersons • CRS Management • Lecturers, facilitators, site co-ordinators and assessors	Non-compliant

Appendix 6c: Strengths, Weaknesses, Opportunities and Threats of the MBChB Rehabilitation Programme

Strengths	Weaknesses
• The programme is aligned with the mission of the FHS and CRS, US • Objectives and competencies are communicated to lecturers and students • Students are prepared for activities and study guides convey relevant information • Eight different educational activities are used to deliver the programme, including patient exposure, CBE, inter-professional learning, reflection on attitudes to team work with appropriate repetition • Students identify with the role of the GP in managing persons with disabilities • Basic educational principles are applied • Students are taught a generic approach to managing a range of health conditions and bio psychosocial problems • General assessment principles are applied • This study has provided an initial evaluation of the programme • The programme is co-ordinated by a passionate committee	• Skills demonstration is lacking • There is a poor variety of assessment methods used • Standardised patients are not used in OSCEs • Poor feedback is provided to students regarding their assessments • Students are not satisfied with the teaching methods and resources • Results of rehabilitation assessments are not tracked by the CRS • The apportionment of resources to the programme lacks transparency and support of the Head of the CRS • The notes are inadequate • There is poor administrative support

Opportunities	Threats
• Increase exposure to specialised rehabilitation services and patients as experts in disability • Increase involvement of doctors and additional team members (clinical psychologists, rehabilitation nurses, dieticians) and ad hoc members in multi-disciplinary team work at sites where students are placed • Formalise integration of rehabilitation teaching across the MBChB curriculum. • Collaboration with IPLO in introducing the ICF across the curriculum • Explore where students currently reflect on their attitudes to persons with disabilities • There are good relationships with clinical sites which can be used to develop further learning opportunities and electives in rehabilitation • Explore the health conditions and bio psychosocial problems present in the community • Develop pre and post exposure assessments • Develop formative learning opportunities • Utilise opportunities at the FHS to train staff in educational and rehabilitation principles • Utilise resources available at the FHS for the delivery of the programme • Develop relationships with local and international universities at the level of undergraduate rehabilitation training • The results of this study must be presented to a variety of stakeholders	• The introduction of the “Hermanus Model” has effected the sequencing of activities • There is no active recruitment of students with disabilities into the FHS • Staff delivering the programme are not adequately rewarded or provided with feedback • Sixth year students regard giving feedback as a burden

Appendix 7: Guideline for Key informant interviews

Appendix 7a: Interview with Manager: Centre for Clinical Education, FHS, US

Before the interview

Schedule appointment with Manager's secretary

Provide manager with reading namely: Information about the researcher, introduction to this study, why he is being interviewed, list of questions.

Confirm reading material has been received

Familiarise self with questions and plan for possible answers

At the interview

Arrive timeously

Enquire if recording of the interview is acceptable

Introduce self and aim of interview

Ask if reading material was read and understood

Keep track of passage of time

Questions to be asked

- Where did the Profile of the Stellenbosch doctor originate from?
- Who is represented on the Curriculum committee? How does the committee function?
- Is inter-professional socialisation encouraged within the curriculum? If so how?
- How are subjects integrated across the curriculum?
- Is repetition of subject matter identified, discouraged or discouraged?
- What is the university's policy on the enrolment of students with disabilities?
- How is the curriculum currently monitored and evaluated?

Closure

Thank the manager for his time

Request a follow up interview

Appendix 7b: Interview with Head, Centre for Rehabilitation Studies, FHS, US

Before the interview

Schedule appointment with Head's secretary

Provide head with summary of the compliance of the programme with the indicators and a list of which ones will be discussed

Familiarise self with questions and plan for possible answers

At the interview

Arrive timeously

Enquire if recording of the interview is acceptable

Ask if questions were read and understood

Keep track of passage of time

Indicators to be discussed

- Electives in rehabilitation (undergraduate are offered)
- Staff involved with the programme are rewarded in some way e.g. monetary, academic rewards or recognition
- Staff involved with the programme are not burdened by the programme e.g. competition for clinical or personal time (preparation for lectures or contact session, preparing and marking assessments), incurring of expenses (travel and teaching materials)
- Staff are trained in educational principles in order to educate, facilitate, site co-ordinate and assess knowledge, skills and attitudes
- The department delivering the programme allocates resources (financial, human) to the MBChB programme proportionately to its other activities
- There is exchange with international universities for the benefit of the programme
- There is adequate administrative support

Closure

Thank the head for her time

Note regarding appendices 8-15

All appendices 8 – 15 contain the following information

- Introductory letter that was included in the e-mail or direct communication, confirming the verbal (telephonic or direct) invitation to participate in the study.
- Each questionnaire is preceded by the instructions starting with the letter addressed "Dear participant". This is followed by the two parts of the questionnaire, part A (questions 1-7) and part B (questions 1-9) with only the relevant questions being asked of the particular sample.

Appendix 8: Questionnaire for Module Chairpersons

Dear Doctor

I am approaching you in your capacity as a module chairperson of the combined Rehabilitation, Community Health and Family Medicine programme of the MBChB curriculum of the University of Stellenbosch. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 30-45 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail. I have also attached the Profile of the Stellenbosch Doctor, extracts from the students' study guides pertaining to the rehabilitation programme and sample questions from the Theory

block and OSCEs for your reference should this be required to answer section B of the attached questionnaire.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

1a	Which module do you chair? (You may mark more than one block.)	Early	Mid	Late	Theory	Overall clinical chair
3d	For how many years have you been involved with the MBChB rehabilitation programme?					
4b	In which year did you acquire your professional qualification?					
4c	At which university did you acquire your qualification?	University of Stellenbosch (US)			Other: Specify	

4d	Did you receive any rehabilitation training in your undergraduate curriculum?	No		Yes: Specify
4e	What post graduate training have you completed? (You may mark more than one block.)	MFam Med (US)		MFam Med (Other University): Specify
		MSc (Rehab) (US)		Other degree, diploma or short courses in rehabilitation: Specify
		None		
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No		Yes: Specify
6a	Does your current work include clinical, managerial and/or academic practice? (You may mark more than one block.)	Clinical	Managerial	Academic
6b	If you currently perform clinical duties, in which setting does this take place? (You may mark more than one block.)	Public Community Health Centre	Public District Hospital	Public Regional hospital
		Specialised public hospital (TBH, GSH, WCRC)	Community based Private practice	Hospital based private practice
		Other: Specify		

<table>
<tr><td>6c</td><td>How many years experience do you have in managing persons with disabilities together with a multi (or inter) disciplinary team? (Enter 0 if no such experience.)</td><td colspan="4"></td></tr>
<tr><td>6d</td><td>How many years experience do you have of primary care practice? (Enter 0 if no primary care experience.)</td><td colspan="4"></td></tr>
<tr><td rowspan="8">6e</td><td rowspan="8">What rehabilitation resources other than your own profession do you have access to in order to perform your duties (clinical, managerial or academic)? (You may mark more than one block.)</td><td>Physio Therapy</td><td>Occupational Therapy</td><td>Speech Therapy</td><td>Social Worker</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Clinical Psychology</td><td>Rehabilitation Doctor</td><td>Rehabilitation nurse</td><td>Dietician</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">In-patient rehabilitation facility</td><td colspan="2">Out-patient rehabilitation facility</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="4">Other resources: specify</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>7a</td><td>What is your age?</td><td colspan="4"></td></tr>
<tr><td rowspan="2">7b</td><td rowspan="2">What is your gender?</td><td colspan="2">Male</td><td colspan="2">Female</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
</table>

8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

1	**Mission and objectives: The objectives of the Faculty of Health Sciences (FHS) for the MBChB curriculum are contained in the Profile of the Stellenbosch Doctor (attached). The objective of the rehabilitation programme of the Faculty of Health Sciences, University of Stellenbosch is to produce a doctor who can manage persons with disabilities within a primary health care setting in SA (see attached extracts from study guides).**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
1.1b	The MBChB rehabilitation programme objectives and competencies are aligned with the Faculty's Profile of the Stellenbosch doctor.					
1.3	The objectives and competencies of the MBChB rehabilitation programme are communicated to the rehabilitation programme lecturers, facilitators, site co-ordinators and assessors.					
1.4	The objectives and competencies of the MBChB rehabilitation programme are communicated to the medical students (e.g. in the study guide, in the introduction sessions and contact sessions).					

2a	**Educational programme: The outcomes are achieved through a variety of educational methods or activities that are internationally considered appropriate.**			
2.1a	The following educational methods or activities are used to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Lectures by rehabilitation clinicians	Lectures / discussions with persons with disabilities to understand the impact of disability	Evaluating patients with disabilities
		Case discussions	Exposure to teamwork	Home visits
		Group research / projects	Presentation to class / group	Visits to community rehabilitation resources
		Practical demonstration of patient evaluation and examination	Practical demonstration of skills e.g. stump bandaging, wheelchair positioning, patient transfers	Simulation of a disability (e.g. spending a day in a wheelchair or on crutches)
		Reflection on learning experience	Other: specify	
2.1c	Can you suggest any additional educational methods or activities that could be used to deliver the MBChB rehabilitation programme? Please list.			

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.2	Medical students are informed of the various educational methods or activities that will be used e.g. interdisciplinary teamwork, patient contacts, teaching by doctors, therapists and patients.					
2.3	The sections of the study guides pertaining to the MBChB rehabilitation programme clearly (in terms of readability and format) convey all relevant information (objectives, competencies, educational methods or activities, sequencing of activities, assessment methods, etc).					
2.4	Rehabilitation activities are sequenced over consecutive modules so that medical students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability. I.e. early phase students should be taught general principles whereas in the late phase specific rehabilitation interventions should be taught. The mid and theory modules should touch on both.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.5	Medical students are placed in community settings for clinical rehabilitation programme activities.					
2.6a	Medical student clinical placements burden community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.6b	Medical student clinical placements benefit community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.7a	Medical students are exposed to inter or multidisciplinary team work during the rehabilitation programme activities.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.8a	Medical students observe doctors functioning within multi or interdisciplinary teams during the rehabilitation programme activities.					
2.9a	The MBChB rehabilitation programme provides medical students with an opportunity to acknowledge and explore their attitudes towards team work and team members.					
2.10	Interpersonal communication is addressed in the activities of the MBChB rehabilitation programme.					
2.11a	During the MBChB rehabilitation programme medical students have an opportunity to participate in learning activities together with students and professionals from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics).					
2.12a	In the MBChB rehabilitation programme, medical students are led to identify with the role that general practitioners (including medical officers and Family Physicians) have in the management of persons with disabilities in the community.					

2.13	During the rehabilitation programme students are taught <u>how persons with disabilities are managed in the following settings</u>. (Mark "X" in the block below all the relevant options.)	Acute care setting		Post acute care setting		At follow up in the community
		In a specialised Tertiary hospital (e.g. TBH, GSH, RXH) setting		In a specialised in-patient rehabilitation setting		In a community rehabilitation setting
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.14a	Medical students are given an opportunity to acknowledge, explore and <u>reflect on their personal attitudes towards persons with disabilities</u> during the MBChB rehabilitation programme.					
2.16	Medical students are required to <u>apply knowledge, skills and attitudes acquired in other specialities</u> in order to complete their rehabilitation tasks.					
2.17	Medical students are made <u>responsible for their own learning</u> through evidenced based practice, problem solving, critical thinking and clinical reasoning in order to complete their rehabilitation tasks.					
2.18	Medical students have to <u>draw on learning in basic medical sciences</u> (anatomy, physiology, chemistry) in order to complete their rehabilitation tasks.					
2.19a	The MBChB rehabilitation programme unnecessarily <u>repeats learning within the programme.</u>					

2b	**Educational programme: The content of the programme links to the practice of rehabilitation in primary care in SA.**			
2.22a	Medical students are made aware of the following health conditions which cause disability in South Africa during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poli-trauma	Other: specify
2.22b	Are there any additional health conditions that should be covered by the rehabilitation programme? Please list.			

2.23a	Medical students are made aware of the following bio, psycho and social aspects of disability during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
		Other: specify		
2.23b	Are there any additional bio, psycho and social aspects of disability that should be covered in the rehabilitation programme? Please list.			

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24a	During the MBChB rehabilitation programme medical students are taught how to manage the medical aspects of disability.					
2.24b	During the MBChB rehabilitation programme medical students are taught knowledge and skills by disciplines such as physio (e.g. how to transfer a patient), occupational therapy (e.g. principles of self care), speech therapy (e.g. how to communicate with an aphasic patient), social work (e.g. counselling skills), nursing (e.g. wound care technique), clinical psychology (e.g. how to handle difficult behaviour) and dietetics (basic nutritional advice) which they can use to manage persons with disabilities (trans disciplinary management).					
	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24c	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to members of the multidisciplinary team.					
2.24d	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to community resources.					
2.25	During the MBChB rehabilitation programme medical students are taught a generic approach to disability so that they can manage any (health) condition causing disability.					
2.26	Do you have any further comment on the content and delivery of this rehabilitation programme (omissions or unnecessary inclusions) which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					

3	**Assessment of students: Please refer to the attached study guides for objectives and rubrics for assessment of clinical modules if necessary. Examples of theory test and exam and OSCE questions are also attached for your reference.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.1	The assessments of the medical students' rehabilitation knowledge, skills and attitudes are valid in that they test the objectives as stated in the study guides.					
3.2a	Scoring criteria are used to ensure reliability of medical student assessments (to prevent inter and intra assessor variability) in the MBChB rehabilitation programme.					
3.2b	Global rating scales are used in the assessment of medical students in the MBChB rehabilitation programme.					
3.3a	The following assessment methods are used in the MBChB rehabilitation programme to assess the students. (Mark "X" in the block below all the relevant options.)	Oral testing of theoretical knowledge		Oral based on a case study		MCQ / short answer
		Essay testing of theoretical knowledge		Essay based on case study		Portfolio / patient write up
		Student being observed while assessing a patient		Presentation to assessor and class		In course assessment by facilitator (attitude, participation)
		Assessment by fellow students		Other: Specify		

3.3b	Are there any additional methods that could be considered to assess the medical students' knowledge, skills and attitudes in the MBChB rehabilitation programme? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.4	The methods used to assess the medical students in the rehabilitation programme are feasible in relation to resources (finances, time, staff, equipment, venues, patients) of the Centre for Rehabilitation Studies.					
3.5a	Standardised patients are used in the MBChB rehabilitation OSCE.					
3.5b	In the MBChB rehabilitation programme patients assist with the assessment of medical student attitudes.					
3.6	Understanding rather than recall is assessed in the MBChB rehabilitation programme.					
3.7	Medical students receive feedback on their rehabilitation assessments.					
3.8	Medical students are tested before and after rehabilitation training to evaluate the gain in knowledge, skills and attitudes during the programme.					
3.9	Medical students are aware of the pass requirements for the rehabilitation assessments.					

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1b	There are students with disabilities enrolled in the MBChB curriculum at the Faculty of Health Sciences, US.					
4.3	Medical students are satisfied with the various rehabilitation teaching methods.					
4.4a	Medical students are satisfied with the proficiency of rehabilitation teaching staff as clinicians.					
4.4b	Medical students are satisfied with the proficiency of rehabilitation teaching staff as lecturers, facilitators, site-co-ordinators and assessors.					
4.4c	Medical students are satisfied with the quantity and quality of clinical teaching sites used for the rehabilitation programme.					

5	**Academic staff: This refers to the lecturers, facilitators, site co-ordinators and assessors involved in the delivery of the programme.**				
5.1a	The following disciplines contribute to the delivery of the rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		Other: specify			
5.1b	Are there any other disciplines that should contribute to the delivery of the rehabilitation programme? Please list.				
5.2a	Staff involved with the MBChB rehabilitation programme are rewarded in the following ways. (Mark "X" in the block below all the relevant options.)	Financially	Academic recognition (e.g. CPD points, lecturer status)	Professional stimulation	
		Other: specify			
5.2b	Are there any other ways in which staff could be rewarded for their involvement in the MBChB rehabilitation programme? Please list.				

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.3	Staff involved with the MBChB rehabilitation programme are burdened by clinical or personal time spent on preparing for lectures or contact sessions, preparing and marking assessments or expenses (travel and teaching materials).					
5.4a	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are trained in educational principles e.g. facilitation, community based education, problem based learning, assessment of students.					
5.4b	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are proficient rehabilitation clinicians.					
5.4c	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors have appropriate attitudes and personal attributes (e.g. compassion, objectivity, commitment, humour, communication skills, appreciation of students' strength and weaknesses) conducive to lecturing and facilitation.					
5.4d	Is there any training that the staff involved in the MBChB rehabilitation programme need? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.5	MBChB Rehabilitation lecturers, facilitators, site co-ordinators and assessors get feedback on their performance.					

6	**Educational resources: These include financial and human resources, clinical sites, patient cases, library material, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.1a	The Centre for Rehabilitation Studies has adequate (number and quality) staff to deliver the MBChB rehabilitation programme.					
6.1b	The Centre for Rehabilitation Studies has adequate (number and quality) clinical teaching sites and patients to deliver the MBChB rehabilitation programme.					
6.1c	The Centre for Rehabilitation Studies has adequate (number and quality) library resources to deliver the MBChB rehabilitation programme.					
6.1d	The Centre for Rehabilitation Studies has adequate finances to deliver the MBChB rehabilitation programme.					
6.1e	The Centre for Rehabilitation Studies has adequate equipment to deliver the MBChB rehabilitation programme.					
6.4a	Patients are involved with the MBChB rehabilitation programme as case subjects.					
6.4b	Patients are involved with the MBChB rehabilitation programme as experts in disability and rehabilitation.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.5	Resources are available for self-directed learning within the MBChB rehabilitation programme.					
6.6a	The Centre for Rehabilitation Studies makes use of the following resources available within the faculty to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Web CT	Skills lab	Library		
		Power point lecture notes	Narrative lecture notes	Direct contact with lecturers / facilitators		
		Other : specify				
6.6b	Are there any other resources that are available in the Faculty of Health Sciences, US, that could be considered to deliver the MBChB rehabilitation programme? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.7	The Centre for Rehabilitation Studies has had access to educational expertise in order to develop the MBChB rehabilitation programme.					

7	**Programme evaluation.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.1	The inputs (students, resources), processes (activities), outputs (students' assessment results) and outcomes (achievement of objectives) of the MBChB rehabilitation programme are monitored on an ongoing basis.					
7.2	The MBChB rehabilitation programme is monitored and evaluated based on input as included in this questionnaire from the following. (Mark "X" in the block below all the relevant options.)	Faculty of Health Sciences managers(including curriculum and programme committees)		Module chair persons		Centre for Rehabilitation Studies managers
		Rehabilitation lecturers, facilitators, site co-ordinators and assessors		Medical students		Rehabilitation experts
		Patients		Other: specify		

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.3a	Medical students give feedback on the usefulness of the MBChB rehabilitation programme.					
7.3b	Medical students give feedback on the achievement of objectives of the MBChB rehabilitation programme.					
7.3c	Medical students give feedback on the achievement of their own expectations of the MBChB rehabilitation programme.					
7.4	Medical students consider giving feedback on the MBChB rehabilitation programme to be a burden.					

8	**Governance and administration of the MBChB rehabilitation programme.**					
8.1	The MBChB rehabilitation programme is co-ordinated by a committee or an individual. (Place an "X" under the chosen answer.)	A committee			An individual	
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
8.2	The co-ordinator(s) is (are) passionate about the outcome of the MBChB rehabilitation programme and drive its delivery and development.					
8.3	There is a good relationship between the Centre for Rehabilitation Studies and clinical rehabilitation sites where medical students are placed.					
8.4	There is adequate administrative support for the MBChB rehabilitation programme.					

9	**Continuous renewal.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
9.1	The MBChB rehabilitation programme is evaluated at pre-determined intervals.					
9.2	If so: the results of these evaluations are presented to stakeholders and decision making structures (e.g. curriculum committee).					
	Do you have any further comment on the administrative aspects of rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					
	Could I contact you for an interview should this be deemed necessary?	Yes	No			
	Would you like direct feedback on the results of this study?	Yes	No			
If so:	Contact details	Name				
	Tel no	e-mail				

Many thanks for participating in this study.

Please save the entries made on this questionnaire and mail it back to the researcher at hsammons@pgwc.gov.za

Appendix 9: Questionnaire for the Centre for Rehabilitation Studies Managers

Dear Sir/Madam

I am approaching you as a member of the Centre for Rehabilitation Studies who manages the rehabilitation component of the combined Rehabilitation, Community Health and Family Medicine programme of the MBChB curriculum of the University of Stellenbosch. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 30-45 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail. I have also attached the Profile of the Stellenbosch Doctor, extracts from the students' study guides pertaining to the rehabilitation programme and sample questions from the Theory block and OSCEs for your reference should this be required to answer section B of the attached questionnaire.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

1b	What is your role at the Centre for Rehabilitation Studies?	Head of the CRS			MBChB co-ordinator	
		Other: specify				
3a	If you are involved in the delivery of the MBChB rehabilitation programme, in what modules are you involved? (You may mark more than one block.)	Early Phase module	Mid Phase module	Late Phase module	Theory module	OSCE
3b	If you are involved in the delivery of the MBChB rehabilitation programme, what role do you fulfil? (You may mark more than one block.)	Lecturer	Facilitator	Site co-ordinator	Assessor	
3c	If you are involved with the MBChB rehabilitation programme in another way, explain here.					
3d	For how many years have you been involved with the MBChB rehabilitation programme?					
4a	What is your profession/association with the MBChB programme? (You may mark more than one block.)	Physiotherapist	Occupational Therapist	Speech therapist		
		Social Worker	Clinical Psychologist	Rehabilitation nurse		
		Rehabilitation Doctor	Primary care Medical practitioner	Dietician		
		Other: Specify				

4b	In which year did you acquire your professional qualification?		
4c	At which university did you acquire your qualification?	University of Stellenbosch (US)	Other: Specify
4d	Did you receive any rehabilitation training in your undergraduate curriculum?	No	Yes: Specify
4e	What post graduate training have you completed? (You may mark more than one block.)	MFam Med (US)	MFam Med (Other University): Specify
		MSc (Rehab) (US)	Other degree, diploma or short courses in rehabilitation: Specify
		None	
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify

6a	Does your current work include clinical, managerial and/or academic practice? (You may mark more than one block.)	Clinical	Managerial	Academic	
6b	If you currently perform clinical duties, in which setting does this take place? (You may mark more than one block.)	Public Community Health Centre	Public District Hospital	Public Regional hospital	
		Specialised public hospital (TBH, GSH, WCRC)	Community based Private practice	Hospital based private practice	
		Other: Specify			
6c	How many years experience do you have in the field of disability and rehabilitation practice? (Enter 0 if no rehabilitation experience.)				
6d	How many years experience do you have of primary care practice? (Enter 0 if no primary care experience.)				
6e	What rehabilitation resources other than your own profession do you have access to in order to perform your duties (clinical, managerial or academic)? (You may mark more than one block.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		In-patient rehabilitation facility		Out-patient rehabilitation facility	
		Other resources: specify			

7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

1	**Mission and objectives: The objectives of the Faculty of Health Sciences (FHS) for the MBChB curriculum are contained in the Profile of the Stellenbosch Doctor (attached). The objective of the rehabilitation programme of the Faculty of Health Sciences, University of Stellenbosch is to produce a doctor who can manage persons with disabilities within a primary health care setting in SA (see attached extracts from study guides).**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
1.1b	The MBChB rehabilitation programme objectives and competencies are aligned with the Faculty's Profile of the Stellenbosch doctor.					
1.2a	The Centre for Rehabilitation Studies has a mission statement.					
1.2b	If so, the mission statement is as follows:					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
1.2c	The mission statement aligns with the MBChB rehabilitation programme objectives and competencies.					
1.3	The objectives and competencies of the MBChB rehabilitation programme are communicated to the rehabilitation programme lecturers, facilitators, site co-ordinators and assessors.					
1.4	The objectives and competencies of the MBChB rehabilitation programme are communicated to the medical students (e.g. in the study guide, in the introduction sessions and contact sessions).					

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**			
2.1a	The following educational methods or activities <u>are used</u> to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Lectures by rehabilitation clinicians	Lectures / discussions with persons with disabilities to understand the impact of disability	Evaluating patients with disabilities
		Case discussions	Exposure to teamwork	Home visits
		Group research / projects	Presentation to class / group	Visits to community rehabilitation resources
		Practical demonstration of patient evaluation and examination	Practical demonstration of skills e.g. stump bandaging, wheelchair positioning, patient transfers	Simulation of a disability (e.g. spending a day in a wheelchair or on crutches)
		Reflection on learning experience	Other: specify	
2.1b	Can you suggest any <u>additional educational methods</u> or activities <u>that could be used</u> to deliver the MBChB rehabilitation programme? Please list.			

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.2	Medical students are informed of the various educational methods or activities that will be used e.g. interdisciplinary teamwork, patient contacts, teaching by doctors, therapists and patients.					
2.3	The sections of the study guides pertaining to the MBChB rehabilitation programme clearly (in terms of readability and format) convey all relevant information (objectives, competencies, educational methods or activities, sequencing of activities, assessment methods, etc).					
2.4	Rehabilitation activities are sequenced over consecutive modules so that medical students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability. I.e. early phase students should be taught general principles whereas in the late phase specific rehabilitation interventions should be taught. The mid and theory modules should touch on both.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.5	Medical students are placed in community settings for clinical rehabilitation programme activities.					
2.6a	Medical student clinical placements burden community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.6b	Medical student clinical placements benefit community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.7a	Medical students are exposed to inter or multidisciplinary team work during the rehabilitation programme activities.					

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.8a	Medical students observe doctors functioning within multi or interdisciplinary teams during the rehabilitation programme activities.					
2.9a	The MBChB rehabilitation programme provides medical students with an opportunity to acknowledge and explore their attitudes towards team work and team members					
2.9b	Medical students consider rehabilitation teaching by rehabilitation team members (e.g. therapists, social workers, clinical psychologists and nurses) to be of greater/equal/less value than teaching by rehabilitation doctors	Teaching by rehabilitation team members is of greater value		Equal value		Teaching by therapists is of less value
	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.10	Interpersonal communication is addressed in the activities of the MBChB rehabilitation programme.					
2.11a	During the MBChB rehabilitation programme medical students have an opportunity to participate in learning activities together with students and professionals from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics).					
2.12a	In the MBChB rehabilitation programme, medical students are led to identify with the role of the general practitioner in the management of persons with disabilities in the community					
2.12b	General practitioners (including medical officers and Family Physicians) have a role to play in the management of persons with disabilities in the community.					

2.13	During the rehabilitation programme students are taught how persons with disabilities are managed in the following settings. (Mark "X" in the block below all the relevant options.)	Acute care setting		Post acute care setting		At follow up in the community
		In a specialised Tertiary hospital (e.g. TBH, GSH, RXH) setting		In a specialised in-patient rehabilitation setting		In a community rehabilitation setting
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.14a	Medical students are given an opportunity to acknowledge, explore and reflect on their personal attitudes towards persons with disabilities during the MBChB rehabilitation programme.					
2.14b	Medical students value the role that persons with disabilities have in teaching the impact of disability on an individual.					
2.15b	Rehabilitation should be taught to medical students as a separate speciality.					
2.15c	Rehabilitation should be taught to medical students during each speciality e.g. Orthopaedics, Vascular surgery, Neurology, Rheumatology, etc.					

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.16	Medical students are required to apply knowledge, skills and attitudes acquired in other specialities in order to complete their rehabilitation tasks.					
2.17	Medical students are made responsible for their own learning through evidenced based practice, problem solving, critical thinking and clinical reasoning in order to complete their rehabilitation tasks.					
2.18	Medical students have to draw on learning in basic medical sciences (anatomy, physiology, chemistry) in order to complete their rehabilitation tasks.					
2.19a	The MBChB rehabilitation programme unnecessarily repeats learning within the programme.					
2.20	Electives for medical students in rehabilitation are offered and marketed.					

2b	**Educational programme: The content of the programme links to the practice of rehabilitation in primary care in SA.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.21	The definition of disability and rehabilitation is taught to the medical students using the framework of the International Classification of Function (WHO, 2001).					

2.22a	Medical students are made aware of the following health conditions which cause disability in South Africa during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poly-trauma	Other: specify
2.22b	Are there any additional health conditions that should be covered by the rehabilitation programme? Please list.			

2.23a	Medical students are made aware of the following bio, psycho and social aspects of disability during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
		Other: specify		
2.23b	Are there any additional bio, psycho and social aspects of disability that should be covered in the rehabilitation programme? Please list.			

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24a	During the MBChB rehabilitation programme medical students are taught how to manage the medical aspects of disability.					
2.24b	During the MBChB rehabilitation programme medical students are taught knowledge and skills by disciplines such as physio (e.g. how to transfer a patient), occupational therapy (e.g. principles of self care), speech therapy (e.g. how to communicate with an aphasic patient), social work (e.g. counselling skills), nursing (e.g. wound care technique), clinical psychology (e.g. how to handle difficult behaviour) and dietetics (basic nutritional advice) which they can use to manage persons with disabilities (trans disciplinary management).					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24c	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to members of the multidisciplinary team.					
2.24d	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to community resources.					
2.25	During the MBChB rehabilitation programme medical students are taught a generic approach to disability so that they can manage any (health) condition causing disability.					
2.26	Do you have any further comment on the content and delivery of this rehabilitation programme (omissions or unnecessary inclusions) which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					

3	**Assessment of students: Please refer to the attached study guides for objectives and rubrics for assessment of clinical modules if necessary. Examples of theory test and exam and OSCE questions are also attached for your reference.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.1	The assessments of the medical students' rehabilitation knowledge, skills and attitudes are valid in that they test the objectives as stated in the study guides.					
3.2a	Scoring criteria are used to ensure reliability of medical student assessments (to prevent inter and intra assessor variability) in the MBChB rehabilitation programme.					
3.2b	Global rating scales are used in the assessment of medical students in the MBChB rehabilitation programme.					
3.3a	The following assessment methods are used in the MBChB rehabilitation programme to assess the students. (Mark "X" in the block below all the relevant options.)	Oral testing of theoretical knowledge	Oral based on a case study	MCQ / short answer		
		Essay testing of theoretical knowledge	Essay based on case study	Portfolio / patient write up		
		Student being observed while assessing a patient	Presentation to assessor and class	In course assessment by facilitator (attitude, participation)		
		Assessment by fellow students	Other: Specify			

3.3b	Are there any additional methods that could be considered to assess the medical students' knowledge, skills and attitudes in the MBChB rehabilitation programme? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.4	The methods used to assess the medical students in the rehabilitation programme are feasible in relation to resources (finances, time, staff, equipment, venues, patients) of the Centre for Rehabilitation Studies.					
3.5a	Standardised patients are used in the MBChB rehabilitation OSCE.					
3.5b	In the MBChB rehabilitation programme patients assist with the assessment of medical student attitudes.					
3.6	Understanding rather than recall is assessed in the MBChB rehabilitation programme.					
3.7	Medical students receive feedback on their rehabilitation assessments.					
3.8	Medical students are tested before and after rehabilitation training to evaluate the gain in knowledge, skills and attitudes during the programme.					
3.9	Medical students are aware of the pass requirements for the rehabilitation assessments.					

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1b	There are students with disabilities enrolled in the MBChB curriculum at the Faculty of Health Sciences, US.					
4.1c	Medical graduates with disabilities are more likely to follow a career in disability and rehabilitation.					
4.2	Medical students come into contact with other students who have disabilities and who are enrolled in other disciplines of the faculty of Health Sciences, US.					
4.3	Medical students are satisfied with the various rehabilitation teaching methods.					
4.4a	Medical students are satisfied with the proficiency of rehabilitation teaching staff as clinicians.					
4.4b	Medical students are satisfied with the proficiency of rehabilitation teaching staff as lecturers, facilitators, site-co-ordinators and assessors.					
4.4c	Medical students are satisfied with the quantity and quality of clinical teaching sites used for the rehabilitation programme.					

5	**Academic staff: This refers to the lecturers, facilitators, site co-ordinators and assessors involved in the delivery of the programme.**				
5.1a	The following disciplines contribute to the delivery of the rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		Other: specify			
5.1b	Are there any other disciplines that should contribute to the delivery of the rehabilitation programme? Please list.				
5.2a	Staff involved with the MBChB rehabilitation programme are rewarded in the following ways. (Mark "X" in the block below all the relevant options.)	Financially	Academic recognition (e.g. CPD points, lecturer status)	Professional stimulation	
		Other: specify			
5.2b	Are there any other ways in which staff could be rewarded for their involvement in the MBChB rehabilitation programme? Please list.				

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.3	Staff involved with the MBChB rehabilitation programme are burdened by clinical or personal time spent on preparing for lectures or contact sessions, preparing and marking assessments or expenses (travel and teaching materials).					
5.4a	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are trained in educational principles e.g. facilitation, community based education, problem based learning, assessment of students.					
5.4b	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are proficient rehabilitation clinicians.					
5.4c	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors have appropriate attitudes and personal attributes (e.g. compassion, objectivity, commitment, humour, communication skills, appreciation of students' strength and weaknesses) conducive to lecturing and facilitation.					
5.4d	Is there any training that the staff involved in the MBChB rehabilitation programme need? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.5	MBChB Rehabilitation lecturers, facilitators, site co-ordinators and assessors get feedback on their performance.					

6	**Educational resources: These include financial and human resources, clinical sites, patient cases, library material, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.1a	The Centre for Rehabilitation Studies has adequate (number and quality) staff to deliver the MBChB rehabilitation programme.					
6.1b	The Centre for Rehabilitation Studies has adequate (number and quality) clinical teaching sites and patients to deliver the MBChB rehabilitation programme.					
6.1c	The Centre for Rehabilitation Studies has adequate (number and quality) library resources to deliver the MBChB rehabilitation programme.					
6.1d	The Centre for Rehabilitation Studies has adequate finances to deliver the MBChB rehabilitation programme.					
6.1e	The Centre for Rehabilitation Studies has adequate equipment to deliver the MBChB rehabilitation programme.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.2	The Centre for Rehabilitation Studies allocates resources (human, financial, etc) to the MBChB rehabilitation programme proportionately according to its other activities.					
6.3	The MBChB rehabilitation programme has been costed and has a dedicated budget.					
6.4a	Patients are involved with the MBChB rehabilitation programme as case subjects.					
6.4b	Patients are involved with the MBChB rehabilitation programme as experts in disability and rehabilitation.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.5	Resources are available for self-directed learning within the MBChB rehabilitation programme.					
6.6a	The Centre for Rehabilitation Studies makes use of the following resources available within the faculty to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Web CT	Skills lab	Library		
		Power point lecture notes	Narrative lecture notes	Direct contact with lecturers / facilitators		
		Other : specify				
6.6b	Are there any other resources that are available in the Faculty of Health Sciences, US, that could be considered to deliver the MBChB rehabilitation programme? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.7	The Centre for Rehabilitation Studies has had access to educational expertise in order to develop the rehabilitation programme.					
6.8a	The rehabilitation programme has benefited from exchange with South African universities and rehabilitation experts.					
6.8b	The rehabilitation programme has benefited from exchange with international universities and rehabilitation experts.					

7	**Programme evaluation.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.1	The inputs (students, resources), processes (activities), outputs (students' assessment results) and outcomes (achievement of objectives) of the MBChB rehabilitation programme are monitored on an ongoing basis.					
7.2	The MBChB rehabilitation programme is monitored and evaluated based on input as included in this questionnaire from the following. (Mark "X" in the block below all the relevant options.)	Faculty of Health Sciences managers(including curriculum and programme committees)		Module chair persons		Centre for Rehabilitation Studies managers
		Rehabilitation lecturers, facilitators, site co-ordinators and assessors		Medical students		Rehabilitation experts
		Patients		Other: specify		

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.3a	Medical students give feedback on the usefulness of the MBChB rehabilitation programme.					
7.3b	Medical students give feedback on the achievement of objectives of the MBChB rehabilitation programme.					
7.3c	Medical students give feedback on the achievement of their own expectations of the MBChB rehabilitation programme.					
7.4	Medical students consider giving feedback on the MBChB rehabilitation programme to be a burden.					

8	**Governance and administration of the MBChB rehabilitation programme.**					
8.1	The MBChB rehabilitation programme is co-ordinated by a committee or an individual. (Place an "X" under the chosen answer.)	A committee			An individual	
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
8.2	The co-ordinator(s) is (are) passionate about the outcome of the MBChB rehabilitation programme and drive its delivery and development.					
8.3	There is a good relationship between the Centre for Rehabilitation Studies and clinical rehabilitation sites where medical students are placed.					
8.4	There is adequate administrative support for the MBChB rehabilitation programme.					

9	**Continuous renewal.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
9.1	The MBChB rehabilitation programme is evaluated at pre-determined intervals.					
9.2	If so: the results of these evaluations are presented to stakeholders and decision making structures (e.g. curriculum committee).					
	Do you have any further comment on the administrative aspects of rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					
	Could I contact you for an interview should this be deemed necessary?	Yes	No			
	Would you like direct feedback on the results of this study?	Yes	No			
If so:	Contact details	Name				
	Tel no	e-mail				

Many thanks for participating in this study.

Please save the entries made on this questionnaire and mail it back to the researcher at hsammons@pgwc.gov.za

Appendix 10: Questionnaire for Lecturers, Facilitators, Site co-ordinators and Assessors

Dear Sir/Madam

I am approaching you as a lecturer, facilitator, site co-ordinator and/or assessor for the combined Rehabilitation, Community Health and Family Medicine programme of the MBChB curriculum of the University of Stellenbosch. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 30-45 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail. I have also attached extracts from the students' study guides pertaining to the rehabilitation programme and sample questions from the Theory block and OSCEs for your reference should this be required to answer section B of the attached questionnaire. You will only receive attachments relevant to the component of the rehabilitation programme that you are involved in. The theory block and OSCE questions as required will be sent in a subsequent mail.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

3a	If you are involved in the delivery of the MBChB rehabilitation programme, in what modules are you involved? (You may mark more than one block.)	Early Phase module	Mid Phase module	Late Phase module	Theory module	OSCE
3b	If you are involved in the delivery of the MBChB rehabilitation programme, what role do you fulfil? (You may mark more than one block.)	Lecturer	Facilitator	Site co-ordinator	Assessor	
3c	If you are involved with the MBChB rehabilitation programme in another way, explain here.					
3d	For how many years have you been involved with the MBChB rehabilitation programme?					
4a	What is your profession/association with the MBChB programme? (You may mark more than one block.)	Physiotherapist	Occupational Therapist	Speech therapist		
		Social Worker	Clinical Psychologist	Rehabilitation nurse		
		Rehabilitation Doctor	Primary care Medical practitioner	Dietician		
		Person with a disability				
		Other: Specify				

4b	In which year did you acquire your professional qualification? (Enter "----" if no professional qualification and continue with question 5.)		
4c	At which university did you acquire your qualification?	University of Stellenbosch (US)	Other: Specify
4d	Did you receive any rehabilitation training in your undergraduate curriculum?	No	Yes: Specify
4e	What post graduate training have you completed? (You may mark more than one block.)	MFam Med (US)	MFam Med (Other University): Specify
		MSc (Rehab) (US)	Other degree, diploma or short courses in rehabilitation: Specify
		None	
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify

6a	Does your current work include clinical, managerial and/or academic practice? (You may mark more than one block.)	Clinical	Managerial	Academic	
6b	If you currently perform clinical duties, in which setting does this take place? (You may mark more than one block.)	Public Community Health Centre	Public District Hospital	Public Regional hospital	
		Specialised public hospital (TBH, GSH, WCRC)	Community based Private practice	Hospital based private practice	
		Other: Specify			
6c	How many years experience do you have in managing persons with disabilities together with a multi (or inter) disciplinary team? (Enter 0 if no such experience.)				
6d	How many years experience do you have of primary care practice? (Enter 0 if no primary care experience.)				
6e	What rehabilitation resources other than your own profession do you have access to in order to perform your duties (clinical, managerial or academic)? (You may mark more than one block.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		In-patient rehabilitation facility		Out-patient rehabilitation facility	
		Other resources: specify			

7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

1	**Mission and objectives:** **<u>The objective of the rehabilitation programme</u> of the Faculty of Health Sciences, University of Stellenbosch is to produce a doctor who can manage persons with disabilities within a primary health care setting in SA (see attached extracts from study guides).**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
1.3	The objectives and competencies of the MBChB rehabilitation programme are <u>communicated</u> <u>to the rehabilitation programme lecturers, facilitators, site co-ordinators and assessors.</u>					
1.4	The objectives and competencies of the MBChB rehabilitation programme are <u>communicated</u> <u>to the medical students</u> (e.g. in the study guide, in the introduction sessions and contact sessions).					

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**			
2.1a	The following educational methods or activities <u>are used</u> to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Lectures by rehabilitation clinicians	Lectures / discussions with persons with disabilities to understand the impact of disability	Evaluating patients with disabilities
		Case discussions	Exposure to teamwork	Home visits
		Group research / projects	Presentation to class / group	Visits to community rehabilitation resources
		Practical demonstration of patient evaluation and examination	Practical demonstration of skills e.g. stump bandaging, wheelchair positioning, patient transfers	Simulation of a disability (e.g. spending a day in a wheelchair or on crutches)
		Reflection on learning experience	Other: specify	
2.1b	Can you suggest any <u>additional educational methods</u> or activities <u>that could be used</u> to deliver the MBChB rehabilitation programme? Please list.			

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.2	Medical students are informed of the various educational methods or activities that will be used e.g. interdisciplinary teamwork, patient contacts, teaching by doctors, therapists and patients.					
2.3	The sections of the study guides pertaining to the MBChB rehabilitation programme clearly (in terms of readability and format) convey all relevant information (objectives, competencies, educational methods or activities, sequencing of activities, assessment methods, etc).					
2.4	Rehabilitation activities are sequenced over consecutive modules so that medical students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability. I.e. early phase students should be taught general principles whereas in the late phase specific rehabilitation interventions should be taught. The mid and theory modules should touch on both.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.5	Medical students are placed in community settings for clinical rehabilitation programme activities.					
2.6a	Medical student clinical placements burden community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.6b	Medical student clinical placements benefit community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.7a	Medical students are exposed to inter or multidisciplinary team work during the rehabilitation programme activities.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.8a	Medical students observe doctors functioning within multi or interdisciplinary teams during the rehabilitation programme activities.					
2.9a	The MBChB rehabilitation programme provides medical students with an opportunity to acknowledge and explore their attitudes towards team work and team members.					
2.9b	Medical students consider rehabilitation teaching by rehabilitation team members (e.g. therapists, social workers, clinical psychologists and nurses) to be of greater/equal/less value than teaching by rehabilitation doctors.	Teaching by rehabilitation team members is of greater value		Equal value		Teaching by therapists is of less value
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.10	Interpersonal communication is addressed in the activities of the MBChB rehabilitation programme.					
2.11a	During the MBChB rehabilitation programme medical students have an opportunity to participate in learning activities together with students and professionals from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics).					
2.12a	In the MBChB rehabilitation programme, medical students are led to identify with the role that general practitioners (including medical officers and Family physicians) have in the management of persons with disabilities in the community.					
2.12b	General practitioners (including medical officers and Family Physicians) have a role to play in the management of persons with disabilities in the community.					

2.13	During the rehabilitation programme students are taught how persons with disabilities are managed in the following settings. (Mark "X" in the block below all the relevant options.)	Acute care setting		Post acute care setting		At follow up in the community
		In a specialised Tertiary hospital (e.g. TBH, GSH, RXH) setting		In a specialised in-patient rehabilitation setting		In a community rehabilitation setting
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.14a	Medical students are given an opportunity to acknowledge, explore and reflect on their personal attitudes towards persons with disabilities during the MBChB rehabilitation programme.					
2.14b	Medical students value the role that persons with disabilities have in teaching the impact of disability on an individual.					
2.15b	Rehabilitation should be taught to medical students as a separate speciality.					
2.15c	Rehabilitation should be taught to medical students during each speciality e.g. Orthopaedics, Vascular surgery, Neurology, Rheumatology, etc.					

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.16	Medical students are required to apply knowledge, skills and attitudes acquired in other specialities in order to complete their rehabilitation tasks.					
2.17	Medical students are made responsible for their own learning through evidenced based practice, problem solving, critical thinking and clinical reasoning in order to complete their rehabilitation tasks.					
2.18	Medical students have to draw on learning in basic medical sciences (anatomy, physiology, chemistry) in order to complete their rehabilitation tasks.					
2.19a	The MBChB rehabilitation programme unnecessarily repeats learning within the programme.					

2b	**Educational programme: The content of the programme links to the practice of rehabilitation in primary care in SA.**						
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.			Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.21	The definition of disability and rehabilitation is taught to the medical students using the framework of the International Classification of Function (WHO, 2001).							
2.22a	Medical students are made aware of the following health conditions which cause disability in South Africa during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury				
		TB related neurology	HIV related neurology	Psychiatric conditions				
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment				
		Cerebral palsy	Poly-trauma	Other: specify				
2.22b	Are there any additional health conditions that should be covered by the rehabilitation programme? Please list.							

2.23a	Medical students are made aware of the following bio, psycho and social aspects of disability during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
		Other: specify		
2.23b	Are there any additional bio, psycho and social aspects of disability that should be covered in the rehabilitation programme? Please list.			

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24a	During the MBChB rehabilitation programme medical students are taught how to manage the medical aspects of disability.					
2.24b	During the MBChB rehabilitation programme medical students are taught knowledge and skills by disciplines such as physio (e.g. how to transfer a patient), occupational therapy (e.g. principles of self care), speech therapy (e.g. how to communicate with an aphasic patient), social work (e.g. counselling skills), nursing (e.g. wound care technique), clinical psychology (e.g. how to handle difficult behaviour) and dietetics (basic nutritional advice) which they can use to manage persons with disabilities (trans disciplinary management).					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24c	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to members of the multidisciplinary team.					
2.24d	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to community resources.					
2.25	During the MBChB rehabilitation programme medical students are taught a generic approach to disability so that they can manage any (health) condition causing disability.					
2.26	Do you have any further comment on the content and delivery of this rehabilitation programme (omissions or unnecessary inclusions) which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					

3	**Assessment of students: Please refer to the attached study guides for objectives and rubrics for assessment of clinical modules if necessary. Examples of theory test and exam and OSCE questions are also attached for your reference.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.1	The assessments of the medical students' rehabilitation knowledge, skills and attitudes are valid in that they test the objectives as stated in the study guides.					
3.2a	Scoring criteria are used to ensure reliability of medical student assessments (to prevent inter and intra assessor variability) in the MBChB rehabilitation programme.					
3.2b	Global rating scales are used in the assessment of medical students in the MBChB rehabilitation programme.					
3.3a	The following assessment methods are used in the MBChB rehabilitation programme to assess the students. (Mark "X" in the block below all the relevant options.)	Oral testing of theoretical knowledge		Oral based on a case study		MCQ / short answer
		Essay testing of theoretical knowledge		Essay based on case study		Portfolio / patient write up
		Student being observed while assessing a patient		Presentation to assessor and class		In course assessment of attitude and participation by facilitator
		Assessment by fellow students		Other: Specify		

3.3b	Are there any additional methods that could be considered to assess the medical students' knowledge, skills and attitudes in the MBChB rehabilitation programme? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.4	The methods used to assess the medical students in the rehabilitation programme are feasible in relation to resources (finances, time, staff, equipment, venues, patients) of the Centre for Rehabilitation Studies.					
3.5a	Standardised patients are used in the MBChB rehabilitation OSCE.					
3.5b	In the MBChB rehabilitation programme patients assist with the assessment of medical student attitudes.					
3.6	Understanding rather than recall is assessed in the MBChB rehabilitation programme.					
3.7	Medical students receive feedback on their rehabilitation assessments.					
3.8	Medical students are tested before and after rehabilitation training to evaluate the gain in knowledge, skills and attitudes during the programme.					
3.9	Medical students are aware of the pass requirements for the rehabilitation assessments.					

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1b	There are students with disabilities enrolled in the MBChB curriculum at the Faculty of Health Sciences, US.					
4.2	Medical students come into contact with other students who have disabilities and who are enrolled in other disciplines of the faculty of Health Sciences, US.					
4.3	Medical students are satisfied with the various rehabilitation teaching methods.					
4.4c	Medical students are satisfied with the quantity and quality of clinical teaching sites used for the rehabilitation programme.					

5	**Academic staff: This refers to the lecturers, facilitators, site co-ordinators and assessors involved in the delivery of the programme.**				
5.1a	The following disciplines contribute to the delivery of the rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		Other: specify			
5.1b	Are there any other disciplines that should contribute to the delivery of the rehabilitation programme? Please list.				
5.2a	Staff involved with the MBChB rehabilitation programme are rewarded in the following ways. (Mark "X" in the block below all the relevant options.)	Financially	Academic recognition (e.g. CPD points, lecturer status)	Professional stimulation	
		Other: specify			
5.2b	Are there any other ways in which staff could be rewarded for their involvement in the MBChB rehabilitation programme? Please list.				

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.3	Staff involved with the MBChB rehabilitation programme are burdened by clinical or personal time spent on preparing for lectures or contact sessions, preparing and marking assessments or expenses (travel and teaching materials).					
5.4a	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are trained in educational principles e.g. facilitation, community based education, problem based learning, assessment of students.					
5.4b	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are proficient rehabilitation clinicians.					
5.4d	Is there any training that the staff involved in the MBChB rehabilitation programme need? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.5	MBChB Rehabilitation lecturers, facilitators, site co-ordinators and assessors get feedback on their performance.					

6	**Educational resources: These include financial and human resources, clinical sites, patient cases, library material, etc**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.1a	The Centre for Rehabilitation Studies has adequate (number and quality) staff to deliver the MBChB rehabilitation programme.					
6.1b	The Centre for Rehabilitation Studies has adequate (number and quality) clinical teaching sites and patients to deliver the MBChB rehabilitation programme.					
6.1c	The Centre for Rehabilitation Studies has adequate (number and quality) library resources to deliver the MBChB rehabilitation programme.					
6.1d	The Centre for Rehabilitation Studies has adequate finances to deliver the MBChB rehabilitation programme.					
6.1e	The Centre for Rehabilitation Studies has adequate equipment to deliver the MBChB rehabilitation programme.					
6.4a	Patients are involved with the MBChB rehabilitation programme as case subjects.					
6.4b	Patients are involved with the MBChB rehabilitation programme as experts in disability and rehabilitation.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.5	Resources are available for self-directed learning within the MBChB rehabilitation programme.					
6.6a	The Centre for Rehabilitation Studies makes use of the following resources available within the faculty to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Web CT	Skills lab	Library		
		Power point lecture notes	Narrative lecture notes	Direct contact with lecturers / facilitators		
		Other : specify				
6.6b	Are there any other resources that are available in the Faculty of Health Sciences, US, that could be considered to deliver the MBChB rehabilitation programme? Please list.					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.7	The Centre for Rehabilitation Studies has had access to educational expertise in order to develop the rehabilitation programme.					
6.8a	The rehabilitation programme has benefited from exchange with South African universities and rehabilitation experts.					
6.8b	The rehabilitation programme has benefited from exchange with international universities and rehabilitation experts.					

7	**Programme evaluation.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.1	The inputs (students, resources), processes (activities), outputs (students' assessment results) and outcomes (achievement of objectives) of the MBChB rehabilitation programme are monitored on an ongoing basis.					

7.2	The MBChB rehabilitation programme is monitored and evaluated based on input as included in this questionnaire from the following: (Mark "X" in the block below all the relevant options.)	Faculty of Health Sciences managers(including curriculum and programme committees)	Module chair persons	Centre for Rehabilitation Studies managers
		Rehabilitation lecturers, facilitators, site co-ordinators and assessors	Medical students	Rehabilitation experts
		Patients	Other: specify	

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.3a	Medical students give feedback on the usefulness of the MBChB rehabilitation programme.					
7.3b	Medical students give feedback on the achievement of objectives of the MBChB rehabilitation programme.					
7.3c	Medical students give feedback on the achievement of their own expectations of the MBChB rehabilitation programme.					
7.4	Medical students consider giving feedback on the MBChB rehabilitation programme to be a burden.					

8	**Governance and administration of the MBChB rehabilitation programme.**					
8.1	The MBChB rehabilitation programme is co-ordinated by a committee or an individual. (Place an "X" under the chosen answer.)	A committee		An individual		
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
8.2	The co-ordinator(s) is (are) passionate about the outcome of the MBChB rehabilitation programme and drive its delivery and development.					
8.3	There is a good relationship between the Centre for Rehabilitation Studies and clinical rehabilitation sites where medical students are placed.					
8.4	There is adequate administrative support for the MBChB rehabilitation programme.					

9	**Continuous renewal.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
9.1	The MBChB rehabilitation programme is evaluated at pre-determined intervals.					
9.2	If so: the results of these evaluations are presented to stakeholders and decision making structures (e.g. curriculum committee).					
	Do you have any further comment on the administrative aspects of rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					
	Could I contact you for an interview should this be deemed necessary?	Yes	No			
	Would you like direct feedback on the results of this study?	Yes	No			
If so:	Contact details	Name				
	Tel no	e-mail				

Many thanks for participating in this study.

Please save the entries made on this questionnaire and mail it back to the researcher at hsammons@pgwc.gov.za

Appendix 11: Questionnaires for students

Appendix 11a: Questionnaire for student sample group 1 (Third year students)

Dear Medical student

I am approaching you as a student who is yet to experience the combined Rehabilitation, Community Health and Family Medicine programme of the MBChB curriculum of the University of Stellenbosch. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 10 minutes to answer all the questions.

Should you accept the invitation to participate, please complete the attached questionnaire and return to the researcher. Please note that your participation will in no way effect your Rehabilitation or any other class marks. If you do not wish to participate, return the uncompleted questionnaire to the researcher at the end of the session.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if you write outside of the space provided.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

Once completed please hand the questionnaire back to the research assistant.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify	
7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.		
2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u>** e.g. lectures, patient contacts, case discussions, contact with community resources, simulation of a disability, exposure to teamwork.**.**	
2.1c	List educational methods and activities that you have found to be the <u>most useful</u> during your medical student training so far. You may list methods not noted above.	
	List educational methods and activities that you have found to be the <u>least useful</u> during your medical student training so far. You may list methods not noted above.	

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.7b	Medical students are exposed to inter or multidisciplinary team work during other rotations or specialities of the MBChB curriculum.					
2.8b	Medical students observe doctors functioning within multi or interdisciplinary teams during other rotations (or specialities) of the MBChB curriculum.					
2.11b	During the various MBChB learning activities to date (excluding rehabilitation activities) medical students have had an opportunity to participate in learning activities together with students and professionals from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics).					
2.11c	During the MBChB training at the University of Stellenbosch medical students interact socially with students from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics) either on campus e.g. at residence, in cafeteria, or off campus (family and friends).					
2.14c	I have had contact with persons with disabilities through my student or personal life (other than in the rehabilitation programme).					

2b	**Educational programme: The content of the programme links to the practice of rehabilitation in primary care in SA.**	
2.22b	Please list the health conditions which you consider to cause disability in South Africa and which should be taught in a disability and rehabilitation training programme.	
2.23b	Please list what bio psychosocial aspects of these health conditions you would like to learn about in a disability and rehabilitation training programme.	

3	**Assessment of students:** A variety of assessment methods are available to assess medical students e.g. oral, essay, MCQ, portfolio, presentation, in course assessment, attitude assessment.	
3.3c	List assessment methods that you find to be the most useful during your medical student training so far. You may list methods not noted above.	
	List assessment methods that you find to be the least useful during your medical student training so far. You may list methods not noted above.	

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1b	There are students with disabilities enrolled in the MBChB curriculum at the Faculty of Health Sciences, US.					
4.1c	Medical graduates with disabilities are more likely to follow a career in disability and rehabilitation.					
4.2	Medical students come into contact with other students who have disabilities and who are enrolled in other disciplines of the faculty of Health Sciences, US.					

6	**Educational resources: These include financial and human resources, clinical sites, patient cases, library material, etc.**	
6.6c	List resources that you find to be the most useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.	
	List resources that you find to be the least useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.	

7	**Programme evaluation.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.4	Medical students consider giving feedback on the MBChB rehabilitation programme to be a burden.					
	Do you have any further comment on a rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting?					
	Could I contact you for an interview should this be deemed necessary?	Yes	No			
	Would you like direct feedback on the results of this study?	Yes	No			
If so:	Contact details	Name				
	Tel no	e-mail				

Many thanks for participating in this study

Appendix 11b: Questionnaire for student sample group 7 (Sixth year students)

Dear Medical student

I am approaching you as a student who has experienced the entire combined Rehabilitation, Community Health and Family Medicine programme of the MBChB curriculum of the University of Stellenbosch. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 30-45 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail. Please note that your participation will in no way effect your Rehabilitation or any other class marks.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university other than the University of Stellenbosch?	No	Yes: Specify	
7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

1	**Mission and objectives: The objectives of the Faculty of Health Sciences (FHS) for the MBChB curriculum are contained in the Profile of the Stellenbosch Doctor (attached). The objective of the rehabilitation programme of the Faculty of Health Sciences, University of Stellenbosch is to produce a doctor who can manage persons with disabilities within a primary health care setting in SA.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
1.1a	On the Profile of the Stellenbosch Doctor attached at the end of this questionnaire; √ tick off which competencies you feel have been addressed by the rehabilitation training programme. X cross off those which you feel have not been addressed by the rehabilitation training programme.					
1.4	The objectives and competencies of the MBChB rehabilitation programme are communicated to the medical students (e.g. in the study guide, in the introduction sessions and contact sessions).					

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**			
2.1a	The following educational methods or activities <u>are used</u> to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Lectures by rehabilitation clinicians	Lectures / discussions with persons with disabilities to understand the impact of disability	Evaluating patients with disabilities
		Case discussions	Exposure to teamwork	Home visits
		Group research / projects	Presentation to class / group	Visits to community rehabilitation resources
		Practical demonstration of patient evaluation and examination	Practical demonstration of skills e.g. stump bandaging, wheelchair positioning, patient transfers	Simulation of a disability (e.g. spending a day in a wheelchair or on crutches)
		Reflection on learning experience	Other: specify	
2.1b	Can you suggest any <u>additional educational methods</u> or activities <u>that could be used</u> to deliver the MBChB rehabilitation programme? Please list.			

2.1c	List educational methods and activities that you have found to be the most useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.	
	List educational methods and activities that you have found to be the least useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.	

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.2	Medical students are informed of the various educational methods or activities that will be used e.g. interdisciplinary teamwork, patient contacts, teaching by doctors, therapists and patients.					
2.3	The sections of the study guides pertaining to the MBChB rehabilitation programme clearly (in terms of readability and format) convey all relevant information (objectives, competencies, educational methods or activities, sequencing of activities, assessment methods, etc).					
2.4	Rehabilitation activities are sequenced over consecutive modules so that medical students are first exposed to attitudinal and general principles in disability and rehabilitation before being taught specific knowledge and skills in order to manage a person with a disability. I.e. early phase students should be taught general principles whereas in the late phase specific rehabilitation interventions should be taught. The mid and theory modules should touch on both.					
2.5	Medical students are placed in community settings for clinical rehabilitation programme activities.					
2.6a	Medical student clinical placements burden community rehabilitation resources (e.g. facilities, staff, patients and their carers).					
2.6b	Medical student clinical placements benefit community rehabilitation resources (e.g. facilities, staff, patients and their carers).					

	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.7a	Medical students are exposed to inter or multidisciplinary team work during the rehabilitation programme activities.					
2.7b	Medical students are exposed to inter or multidisciplinary team work during other rotations or specialities of the MBChB curriculum.					
2.8a	Medical students observe doctors functioning within multi or interdisciplinary teams during the rehabilitation programme activities.					
2.8b	Medical students observe doctors functioning within multi or interdisciplinary teams during other rotations (or specialities) of the MBChB curriculum.					
2.9a	The MBChB rehabilitation programme provides medical students with an opportunity to acknowledge and explore their attitudes towards team work and team members.					
2.9b	Medical students consider rehabilitation teaching by rehabilitation team members (e.g. therapists, social workers, clinical psychologists and nurses) to be of greater/equal/less value than teaching by rehabilitation doctors.	Teaching by rehabilitation team members is of greater value		Equal value		Teaching by therapists is of less value

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.10	Interpersonal communication is addressed in the activities of the MBChB rehabilitation programme.					
2.11a	During the MBChB rehabilitation programme medical students have an opportunity to participate in learning activities together with students and professionals from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics).					
2.11b	During the various MBChB learning activities to date (excluding rehabilitation activities) medical students have had an opportunity to participate in learning activities together with students and professionals from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics).					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.11c	During the MBChB training at the University of Stellenbosch medical students interact socially with students from other disciplines (physio, occupational or speech therapy, social work, clinical psychology, nursing, dietetics) either on campus e.g. at residence, in cafeteria, or off campus (family and friends).					
2.12a	In the MBChB rehabilitation programme, medical students are led to identify with the role that general practitioners (including medical officers and Family Physicians) have in the management of persons with disabilities in the community.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.12b	General practitioners (including medical officers and Family Physicians) have a role to play in the management of persons with disabilities in the community.					
2.13	During the rehabilitation programme students are taught how persons with disabilities are managed in the following settings. (Mark "X" in the block below all the relevant options.)	Acute care setting	Post acute care setting	At follow up in the community		
		In a specialised Tertiary hospital (e.g. TBH, GSH, RXH) setting	In a specialised in-patient rehabilitation setting	In a community rehabilitation setting		
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.14a	Medical students are given an opportunity to acknowledge, explore and reflect on their personal attitudes towards persons with disabilities during the MBChB rehabilitation programme.					
2.14b	Medical students value the role that persons with disabilities have in teaching the impact of disability on an individual.					
2.14c	I have had contact with persons with disabilities through my student or personal life (other than in the rehabilitation programme.)					
2.15a	Students are required to apply knowledge, skills and attitudes acquired in rehabilitation in other rotations or specialities.					
2.15b	Rehabilitation should be taught to medical students as a separate speciality.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.15c	Rehabilitation should be taught to medical students during each speciality e.g. Orthopaedics, Vascular surgery, Neurology, Rheumatology, etc.					
2.16	Medical students are required to apply knowledge, skills and attitudes acquired in other specialities in order to complete their rehabilitation tasks.					
2.17	Medical students are made responsible for their own learning through evidenced based practice, problem solving, critical thinking and clinical reasoning in order to complete their rehabilitation tasks.					
2.18	Medical students have to draw on learning in basic medical sciences (anatomy, physiology, chemistry) in order to complete their rehabilitation tasks.					
2.19a	The MBChB rehabilitation programme unnecessarily repeats learning within the programme.					
2.19b	The MBChB rehabilitation programme unnecessarily repeats learning contained elsewhere within the MBChB curriculum.					
2.20	Electives for medical students in rehabilitation are offered and marketed.					

2b	**Educational programme: The content of the programme links to the practice of rehabilitation in primary care in SA.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.21	The definition of disability and rehabilitation is taught to the medical students using the framework of the International Classification of Function (WHO, 2001).					

2.22a	Medical students are made aware of the following health conditions which cause disability in South Africa during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poly-trauma	Other: specify
2.22b	Are there any additional health conditions that should be covered by the rehabilitation programme? Please list.			

2.23a	Medical students <u>are made aware</u> of the following <u>bio, psycho and social</u> aspects of disability during the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
		Other: specify		
2.23b	<u>Are there any additional bio, psycho and social</u> aspects of disability that <u>should be covered</u> in the rehabilitation programme? Please list.			

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.24a	During the MBChB rehabilitation programme medical students are taught how to manage the medical aspects of disability.					
2.24b	During the MBChB rehabilitation programme medical students are taught knowledge and skills by disciplines such as physio (e.g. how to transfer a patient), occupational therapy (e.g. principles of self care), speech therapy (e.g. how to communicate with an aphasic patient), social work (e.g. counselling skills), nursing (e.g. wound care technique), clinical psychology (e.g. how to handle difficult behaviour) and dietetics (basic nutritional advice) which they can use to manage persons with disabilities (trans disciplinary management).					
2.24c	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to members of the multidisciplinary team.					
2.24d	During the MBChB rehabilitation programme medical students are taught when and how to refer persons with disabilities to community resources.					
2.25	During the MBChB rehabilitation programme medical students are taught a generic approach to disability so that they can manage any (health) condition causing disability.					
2.26	Do you have any further comment on the content and delivery of this rehabilitation programme (omissions or unnecessary inclusions) which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					

3	**Assessment of students.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.1	The assessments of the medical students' rehabilitation knowledge, skills and attitudes are valid in that they test the objectives as stated in the study guides.					

3.3a	The following assessment methods are used in the MBChB rehabilitation programme to assess the students. (Mark "X" in the block below all the relevant options.)	Oral testing of theoretical knowledge	Oral based on a case study	MCQ / short answer
		Essay testing of theoretical knowledge	Essay based on case study	Portfolio / patient write up
		Student being observed while assessing a patient	Presentation to assessor and class	In course assessment by facilitator (attitude, participation)
		Assessment by fellow students	Other: Specify	
3.3b	Are there any additional methods that could be considered to assess the medical students' knowledge, skills and attitudes in the MBChB rehabilitation programme? Please list.			

3.3c	List assessment methods that you find to be the most useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.	
	List assessment methods that you find to be the least useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.	

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
3.5a	Standardised patients are used in the MBChB rehabilitation OSCE.					
3.6	Understanding rather than recall is assessed in the MBChB rehabilitation programme.					
3.7	Medical students receive feedback on their rehabilitation assessments.					
3.8	Medical students are tested before and after rehabilitation training to evaluate the gain in knowledge, skills and attitudes during the programme.					
3.9	Medical students are aware of the pass requirements for the rehabilitation assessments.					

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1b	There are students with disabilities enrolled in the MBChB curriculum at the Faculty of Health Sciences, US.					
4.1c	Medical graduates with disabilities are more likely to follow a career in disability and rehabilitation.					
4.2	Medical students come into contact with other students who have disabilities and who are enrolled in other disciplines of the faculty of Health Sciences, US.					
4.3	Medical students are satisfied with the various rehabilitation teaching methods.					
4.4a	Medical students are satisfied with the proficiency of rehabilitation teaching staff as clinicians.					
4.4b	Medical students are satisfied with the proficiency of rehabilitation teaching staff as lecturers, facilitators, site-co-ordinators and assessors.					
4.4c	Medical students are satisfied with the quantity and quality of clinical teaching sites used for the rehabilitation programme.					

5	**Academic staff: This refers to the lecturers, facilitators, site co-ordinators and assessors involved in the delivery of the programme.**				
5.1a	The following disciplines contribute to the delivery of the rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		Other: specify			
5.1b	Are there any other disciplines that should contribute to the delivery of the rehabilitation programme? Please list.				
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
5.4b	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors are proficient rehabilitation clinicians.					
5.4c	MBChB rehabilitation lecturers, facilitators, site co-ordinators and assessors have appropriate attitudes and personal attributes (e.g. compassion, objectivity, commitment, humour, communication skills, appreciation of students' strength and weaknesses) conducive to lecturing and facilitation.					
5.4d	Is there any training that the staff involved in the MBChB rehabilitation programme need? Please list.					

6	**Educational resources: These include financial and human resources, clinical sites, patient cases, library material, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.1a	The Centre for Rehabilitation Studies has adequate (number and quality) staff to deliver the MBChB rehabilitation programme.					
6.1b	The Centre for Rehabilitation Studies has adequate (number and quality) clinical teaching sites and patients to deliver the MBChB rehabilitation programme.					
6.1c	The Centre for Rehabilitation Studies has adequate (number and quality) library resources to deliver the MBChB rehabilitation programme.					
6.1e	The Centre for Rehabilitation Studies has adequate equipment to deliver the MBChB rehabilitation programme.					
6.4a	Patients are involved with the MBChB rehabilitation programme as case subjects.					
6.4b	Patients are involved with the MBChB rehabilitation programme as experts in disability and rehabilitation.					

	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.5	Resources are available for self-directed learning within the MBChB rehabilitation programme.					

6.6a	The Centre for Rehabilitation Studies makes use of the following resources available within the faculty to deliver the MBChB rehabilitation programme. (Mark "X" in the block below all the relevant options.)	Web CT	Skills lab	Library
		Power point lecture notes	Narrative lecture notes	Direct contact with lecturers / facilitators
		Other : specify		
6.6b	Are there any other resources that are available in the Faculty of Health Sciences, US, that could be considered to deliver the MBChB rehabilitation programme? Please list.			
6.6c	List resources that you find to be the most useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.			
	List resources that you find to be the least useful during your medical student training (including rehabilitation) so far. You may list methods not noted above.			

7	**Programme evaluation.**					
	Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
7.3a	Medical students give feedback on the usefulness of the MBChB rehabilitation programme.					
7.3b	Medical students give feedback on the achievement of objectives of the MBChB rehabilitation programme.					
7.3c	Medical students give feedback on the achievement of their own expectations of the MBChB rehabilitation programme.					
7.4	Medical students consider giving feedback on the MBChB rehabilitation programme to be a burden.					

8	**Governance and administration of the MBChB rehabilitation programme.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
8.4	There is adequate <u>administrative support</u> for the MBChB rehabilitation programme.					
	Do you have any further comment on the administrative aspects of rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					
	Could I contact you for an interview should this be deemed necessary?	Yes	No			
	Would you like direct feedback on the results of this study?	Yes	No			
If so:	Contact details	Name				
	Tel no	e-mail				

Many thanks for participating in this study.

Appendix 12: Questionnaire for General Practitioners

Dear Colleague

I am approaching you in your capacity as a general practitioner who presumably manages persons with disabilities in the community. This would include diagnoses such as stroke, amputation and spinal cord injury as well as patients who have problems with self care, mobility, ability to work, etc as a result of any other injury or illness.

The Centre for Rehabilitation Studies of the University of Stellenbosch delivers a disability and rehabilitation training programme to MBChB students, which aims to equip medical graduates with the knowledge, skills and attitudes to be able to manage the needs of persons with disabilities in the community. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 20 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

2a	Are you aware of the combined Rehabilitation, Family Medicine and Community Health MBChB programme of the University of Stellenbosch?	No	Yes
2b	Are you involved in this Rehabilitation, programme of the University of Stellenbosch in any way?	No	Yes
3d	If so, for how many years have you been involved with the MBChB rehabilitation programme? (Enter 0 if not involved with this programme.)		
4b	In which year did you acquire your professional qualification?		
4c	At which university did you acquire your qualification?	University of Stellenbosch (US)	Other: Specify
4d	Did you receive any rehabilitation training in your undergraduate curriculum?	No	Yes: Specify
4e	What post graduate training have you completed? (You may mark more than one block.)	MFam Med (US)	MFam Med (Other University): Specify
		MSc (Rehab) (US)	Other degree, diploma or short courses in rehabilitation: Specify
		None	
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify

6a	Does your current work include clinical, managerial and/or academic practice? (You may mark more than one block.)	Clinical	Managerial	Academic	
6b	If you currently perform clinical duties, in which setting does this take place? (You may mark more than one block.)	Public Community Health Centre	Public District Hospital	Public Regional hospital	
		Specialised public hospital (TBH, GSH, WCRC)	Community based Private practice	Hospital based private practice	
		Other: Specify			
6c	How many years experience do you have in managing persons with disabilities together with a multi (or inter) disciplinary team? (Enter 0 if no such experience.)				
6d	How many years experience do you have of primary care practice? (Enter 0 if no primary care experience.)				
6e	What rehabilitation resources other than your own profession do you have access to in order to perform your duties (clinical, managerial or academic)? (You may mark more than one block.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		In-patient rehabilitation facility		Out-patient rehabilitation facility	
		Other resources: specify			

7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.12b	<u>General practitioners (including medical officers and Family Physicians) have a role to play</u> in the management of persons with disabilities in the community.					

2b	**Educational programme: The <u>content</u> of the programme links to the practice of rehabilitation in primary care in SA.**			
2.22b	Which of the listed health conditions that cause disability have you dealt with in the last six months in your practice? (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poly-trauma	
	What other health conditions that cause disability have you dealt with in the last six months?			

2.23b	What types of problems do these patients present to your practice with? (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
	For what other reasons do persons with disabilities consult your practice? Please list.			

2.24a	If you were to receive disability and rehabilitation training what do you need to learn regarding the medical management of persons with disabilities?	
2.24b	If you were to receive disability and rehabilitation training what do you need to learn from other disciplines (physio, occupational and speech therapy, social work, nursing, clinical psychology, dietician) so that you can better manage your patients with disabilities?	
2.24d	If you were to receive disability and rehabilitation training what do you need to learn about community resources so that you can better manage your patients with disabilities?	

	Do you have any further comment on a rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**		
	Could I contact you for an interview should this be deemed necessary?	Yes	No
	Would you like direct feedback on the results of this study?	Yes	No
If so:	Contact details	Name	
	Tel no	e-mail	

Many thanks for participating in this study.

Please save the entries made on this questionnaire and mail it back to the researcher at hsammons@pgwc.gov.za

Appendix 13: Questionnaire for Rehabilitation doctors

Dear Colleague

I am approaching you in your capacity as an expert in the field of rehabilitation.

The Centre for Rehabilitation Studies of the University of Stellenbosch delivers a disability and rehabilitation training programme to MBChB students, which aims to equip medical graduates with the knowledge, skills and attitudes to be able to manage the needs of persons with disabilities in the community. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 20 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

2a	Are you aware of the combined Rehabilitation, Family Medicine and Community Health MBChB programme of the University of Stellenbosch?	No	Yes
2b	Are you involved in this Rehabilitation, programme of the University of Stellenbosch in any way?	No	Yes
3d	If so, for how many years have you been involved with the MBChB rehabilitation programme? (Enter 0 if not involved with this programme.)		
4b	In which year did you acquire your professional qualification?		
4c	At which university did you acquire your qualification?	University of Stellenbosch (US)	Other: Specify
4d	Did you receive any rehabilitation training in your undergraduate curriculum?	No	Yes: Specify
4e	What post graduate training have you completed? (You may mark more than one block.)	MFam Med (US)	MFam Med (Other University): Specify
		MSc (Rehab) (US)	Other degree, diploma or short courses in rehabilitation: Specify
		None	
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify

6a	Does your current work include clinical, managerial and/or academic practice? (You may mark more than one block.)	Clinical	Managerial	Academic	
6b	If you currently perform clinical duties, in which setting does this take place? (You may mark more than one block.)	Public Community Health Centre	Public District Hospital	Public Regional hospital	
		Specialised public hospital (TBH, GSH, WCRC)	Community based Private practice	Hospital based private practice	
		Other: Specify			
6c	How many years experience do you have in managing persons with disabilities together with a multi (or inter) disciplinary team? (Enter 0 if no such experience.)				
6d	How many years experience do you have of primary care practice? (Enter 0 if no primary care experience.)				
6e	What rehabilitation resources other than your own profession do you have access to in order to perform your duties (clinical, managerial or academic)? (You may mark more than one block.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		In-patient rehabilitation facility		Out-patient rehabilitation facility	
		Other resources: specify			

7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.12b	<u>General practitioners (including medical officers and Family Physicians) have a role to play</u> in the management of persons with disabilities in the community.					
2.15b	Rehabilitation should be <u>taught to medical students as a separate speciality.</u>					
2.15c	Rehabilitation should be <u>taught to medical students during each speciality</u> e.g. Orthopaedics, Vascular surgery, Neurology, Rheumatology, etc.					
2.20	The clinical setting in which I work <u>offers electives in rehabilitation for medical students</u>.					

2b	**Educational programme: The <u>content</u> of the programme links to the practice of rehabilitation in primary care in SA.**			
2.22b	<u>Which</u> of the listed health <u>conditions should be taught</u> to medical students in a disability and rehabilitation training programme? (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poly-trauma	
	What other health conditions should be taught to medical students in a disability and rehabilitation training programme? Please list.			

2.23b	What bio psychosocial aspects of these conditions should be taught to medical students in a disability and rehabilitation training programme? (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
	Are there any additional bio, psycho and social aspects of disability that should be covered in the rehabilitation programme? Please list.			

2.24a	What do undergraduate medical students need to learn regarding the medical management of persons with disabilities.	
2.24b	What do undergraduate medical students need to learn from other disciplines (physio, occupational and speech therapy, social work, nursing, clinical psychology, dietician) so that they can better manage patients with disabilities?	
2.24d	What do undergraduate medical students need to learn about community resources so that they can better manage patients with disabilities?	

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1c	Medical graduates with disabilities are more likely to follow a career in disability and rehabilitation					
	Do you have any further comment on a rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**					
	Are you aware of any other doctors who I could contact to complete this same questionnaire? Could you please provide their contact details, preferable cell number, so that I may contact them before mailing them a questionnaire.					
	Could I contact you for an interview should this be deemed necessary?	Yes	No			
	Would you like direct feedback on the results of this study?	Yes	No			
If so:	Contact details	Name				
	Tel no	e-mail				

Many thanks for participating in this study.

Please save the entries made on this questionnaire and mail it back to the researcher at hsammons@pgwc.gov.za

Appendix 14: Questionnaire for members of the interdisciplinary team.

Dear Colleague

I am approaching you in your capacity as an expert in the field of rehabilitation.

The Centre for Rehabilitation Studies of the University of Stellenbosch delivers a disability and rehabilitation training programme to MBChB students, which aims to equip medical graduates with the knowledge, skills and attitudes to be able to manage the needs of persons with disabilities in the community. I am currently evaluating the Rehabilitation component of this training programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from the World Federation for Medical Education's (WFME) Global Standards for Medical Education and other relevant literature. It should take you about 20 minutes to answer all the questions.

Should you accept the invitation to participate, please open and complete the attached questionnaire, save and if possible return to me within two weeks of receipt of this mail

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. Mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. Please clearly indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. Please use the space provided. Do not worry if your typing makes the space go onto another page.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

I would appreciate if you could please complete this questionnaire electronically, save the changes and mail the document back to the researcher at hsammons@pgwc.gov.za within 2 weeks of receipt thereof if possible.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

2a	Are you aware of the combined Rehabilitation, Family Medicine and Community Health MBChB programme of the University of Stellenbosch?	No		Yes
2b	Are you involved in this Rehabilitation, programme of the University of Stellenbosch in any way?	No		Yes
3d	If so, for how many years have you been involved with the MBChB rehabilitation programme? (Enter 0 if not involved with this programme.)			
4a	What is your profession?	Physiotherapist	Occupational Therapist	Speech therapist
		Social Worker	Clinical Psychologist	Rehabilitation nurse
		Dietician		
		Other: Specify		

4b	In which year did you acquire your professional qualification?		
4c	At which university did you acquire your qualification?	University of Stellenbosch (US)	Other: Specify
4d	Did you receive any rehabilitation training in your undergraduate curriculum?	No	Yes: Specify
4e	What post graduate training have you completed? (You may mark more than one block.)	MFam Med (US)	MFam Med (Other University): Specify
		MSc (Rehab) (US)	Other degree, diploma or short courses in rehabilitation: Specify
		None	
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify

6a	Does your current work include clinical, managerial and/or academic practice? (You may mark more than one block.)	Clinical	Managerial	Academic	
6b	If you currently perform clinical duties, in which setting does this take place? (You may mark more than one block.)	Public Community Health Centre	Public District Hospital	Public Regional hospital	
		Specialised public hospital (TBH, GSH, WCRC)	Community based Private practice	Hospital based private practice	
		Other: Specify			
6c	How many years experience do you have in managing persons with disabilities together with a multi (or inter) disciplinary team? (Enter 0 if no such experience.)				
6d	How many years experience do you have of primary care practice? (Enter 0 if no primary care experience.)				
6e	What rehabilitation resources other than your own profession do you have access to in order to perform your duties (clinical, managerial or academic)? (You may mark more than one block.)	Physio Therapy	Occupational Therapy	Speech Therapy	Social Worker
		Clinical Psychology	Rehabilitation Doctor	Rehabilitation nurse	Dietician
		In-patient rehabilitation facility		Out-patient rehabilitation facility	
		Other resources: specify			

7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	Yes	No	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.6a	Medical student clinical placements <u>burden community rehabilitation resources</u> (e.g. facilities, staff, patients and their carers).					
2.6b	Medical student clinical placements <u>benefit community rehabilitation resources</u> (e.g. facilities, staff, patients and their carers).					
2.12b	<u>General practitioners (including medical officers and Family Physicians) have a role to play</u> in the management of persons with disabilities in the community.					
2.20	The clinical setting in which I work <u>offers electives in rehabilitation for medical students</u>.					

2b	**Educational programme: The <u>content</u> of the programme links to the practice of rehabilitation in primary care in SA.**			
2.22b	<u>Which</u> of the listed health <u>conditions should be taught</u> to medical students in a disability and rehabilitation training programme? (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poly-trauma	
	What other health conditions should be taught to medical students in a disability and rehabilitation training programme? Please list.			

2.23b	What bio psychosocial aspects of these conditions should be taught to medical students in a disability and rehabilitation training programme? (Mark "X" in the block below all the relevant options.)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
	Are there any additional bio, psycho and social aspects of disability that should be covered in the rehabilitation programme? Please list.			

2.24a	What do undergraduate medical students need to learn regarding the medical management of persons with disabilities?	
2.24b	What do undergraduate medical students need to learn from other disciplines (physio, occupational and speech therapy, social work, nursing, clinical psychology, dietician) so that they can better manage patients with disabilities?	
2.24d	What do undergraduate medical students need to learn about community resources so that they can better manage patients with disabilities?	

	Do you have any further comment on a rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**		
	Could I contact you for an interview should this be deemed necessary?	Yes	No
	Would you like direct feedback on the results of this study?	Yes	No
If so:	Contact details	Name	
	Tel no	e-mail	

Many thanks for participating in this study.

Please save the entries made on this questionnaire and mail it back to the researcher at hsammons@pgwc.gov.za

Appendix 15: Questionnaire for persons with disabilities

Dear Sir/Madam

I am approaching you as an individual with a disability.

The Centre for Rehabilitation Studies of the University of Stellenbosch delivers a disability and rehabilitation training programme to MBChB students, which aims to equip medical graduates with the knowledge, skills and attitudes to be able to manage the needs of persons with disabilities in the community. I am currently evaluating this programme in order to make recommendations for its improvement. This study has been approved by the Ethical committee of the University of Stellenbosch as a dissertation in fulfilment of the requirements of the Masters in Medical Sciences (Rehabilitation).

I would greatly value your participation in this study by providing your opinion on the questions attached. These questions are based on indicators which have been developed from relevant literature. It should take you about 15-20 minutes to answer all the questions.

Should you accept the invitation to participate, please sign this page and complete the attached questionnaire with the help of the researcher.

If you would like to discuss any of these questions, matters related to this study or the rehabilitation training programme please do not hesitate to contact me on 084 250 1328 or hsammons@pgwc.gov.za

Thanking you in anticipation of your valued participation.

Kind regards

Dr Helen Sammons

Dear Participant

Thank you for participating in this study.

This questionnaire consists of three types of questions:

- Some questions call for your agreement or not with a statement. The column headings will be indicated at the top of each section. The research assistant will mark your answer with an “X” in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the “Not applicable” block in the last column.
- Other questions ask for you to mark the most relevant block. The research assistant will indicate your choice(s) with an “X” in the box below the chosen option(s). Please mark only one option unless otherwise indicated that you may choose more than one block.
- Other questions call for a written answer. The research assistant will fill your answer in the space provided. Do not worry if you write outside of this space.

Where parts of questions are underlined, this is to highlight the emphasis of the question. Although some of the questions are personal I would value you answering all the questions to maximise the quality of this research. Your responses will be kept confidential.

Please complete this questionnaire (together with the research assistant) and the research assistant will return it to me.

Thank you

Dr Helen Sammons

PART A: This part contains questions in order to categorise the respondents. All returned questionnaires will be kept confidential.

Please clearly indicate your choice with an "X" in the box below the chosen option(s) or type in the space provided.

2a	Are you aware of the combined Rehabilitation, Family Medicine and Community Health MBChB programme of the University of Stellenbosch?	No	Yes
2b	Are you involved in this Rehabilitation, programme of the University of Stellenbosch in any way?	No	Yes
3d	If so, for how many years have you been involved with the MBChB rehabilitation programme? (Enter 0 if not involved with this programme.)		
5	Are you aware of disability and rehabilitation training offered to undergraduate medical students at any university in South Africa other than at the University of Stellenbosch?	No	Yes: Specify

7a	What is your age?			
7b	What is your gender?	Male	Female	
8a	Do you consider yourself to be disabled?	No	Yes	
8b	If so and if you feel comfortable to do so, please enter the nature of the disability as this information would benefit this study.			
8c	If so for how many years have you been disabled?			
8d	If so what was the cause?	Injury	Illness	Born with disability
		Other: specify		
8e	If so where have you received treatment for your disability? (You may mark more than one block.)	Specialised tertiary hospital	Specialised in patient rehabilitation facility	
		Community rehabilitation facility	General practitioner or Community Health Centre	
	This space is provided should you feel it necessary to provide any further personal information.			

PART B: This part is divided into sections each focussing on a different aspect of the programme as indicated by the headings.

2a	**Educational programme: The outcomes are achieved through a variety of educational <u>methods or activities</u> that are internationally considered appropriate.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
2.6a	It would be <u>a burden</u> for me <u>to talk to medical students</u> in my home or at the clinic.					
2.6b	I would <u>benefit from talking to medical students</u> in my home or at the clinic .					
2.12b	<u>General practitioners (including medical officers and Family Physicians) have a role to play</u> in the management of persons with disabilities in the community.					

2.22a	Which of the listed health conditions that cause disability have you seen in your community? (Mark "X" in the block below all the relevant options.)	Stroke	Head Injury	Spinal Cord Injury
		TB related neurology	HIV related neurology	Psychiatric conditions
		Amputation (traumatic or vascular)	Visual impairment (irrespective of cause)	Intellectual impairment
		Cerebral palsy	Poly-trauma	
2.22b	Are there any <u>additional health conditions that you have seen</u>? Please list.			

2.23a	What types of problems do these patients complain of? (Mark "X" in the block below all the relevant options)	Medical management of the condition (re-boarding of medication, medical stabilisation)	Pressure sores	Pain management
		Circulation problems, Deep Vein thrombosis	Bladder problems	Bowel problems
		Sexual dysfunction	Needing Dietary advice	Needing assistance with self care
		Needing assistance with mobility or requesting assistive devices (issue or repair)	Needing advice re returning to school or work	Feeding and swallowing problems
		Visual problems	Communication problems, speech difficulties	Cognitive and perceptual problems
		Interpersonal relationship issues	Coming to terms with being disabled	Patient and carer education
		Needing help with transport or getting to work/shops/church etc	Application for financial benefits (Disability or insurance claims)	Patient and carer support
2.23b	Are there any additional <u>problems that persons with disabilities</u> complain of? Please list.			

2.26	Do you have any further comment on a rehabilitation programme which aims to produce a doctor who can manage persons with disabilities within a primary health care setting in SA**?**	

4	**Students: This refers to student enrolment, their satisfaction with the programme, etc.**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
4.1c	I have met a doctor with a disability.					

6	**Educational resources: These include financial and human resources, clinical sites, patient cases, library material, etc**					
	Mark your answer with an "X" in the appropriate column in the row in line with the statement. If you do not have enough information to mark an agree/disagree option, mark the "Not applicable" block in the last column.	Strongly Agree	Agree	Disagree	Strongly Disagree	Not applicable
6.4a	I would be prepared to be a case subject in order to assist with training of medical students.					
6.4b	I consider myself to be an expert on the impact of disability on an individual.					

	Could I contact you for an interview should this be deemed necessary?	Yes	No
	Would you like direct feedback on the results of this study?	Yes	No
If so:	Contact details	Name	
	Tel no	e-mail	

Many thanks for participating in this study.

Appendix 16: Representivity of sample participants

Appendix 16a: Representation of modules

Sample number	Sample	Number of respondents within sample directly involved in programme	Early phase	Mid phase	Late phase	Theory module	OSCE
2	Module chairpersons nMC=5	2	0	1 (MC2)	1 (MC2, 3)	0	0
3	CRS Management nCM=3	3	1 (CM1)	1 (CM1, 3)	1 (CM1, 3)	2 (CM1, 2)	1 (CM1)
4	Lecturers, Site co-ordinators, facilitators and assessors nL=18	18	4 (L6, 8, 10, 12)	9 (L2, 4, 5, 6, 7, 8, 13, 14, 15)	8 (L1, 4, 6, 8, 11, 13, 14, 16)	4 (L3, 9, 17, 18)	0
7	General Practitioners nGP=10	2	0	1 (GP1)	0	0	1 (GP6)
8	Rehabilitation Doctors nGP=10	1	0	0	0	1 (RD3)	0
9	Interdisciplinary team members nT=21	1	0	1 (T10)	0	0	0
Total	Aggregate sample	27	5	13	10	7	2

Appendix 16b: Representation of educational roles

Sample number	Sample	Number of respondents within sample directly involved in programme	Lecturer	Facilitator	Site co-ordinator	Assessor
2	Module chairpersons nMC=5	2	0	0	2 (MC2, 3,)	1 (MC2)
3	CRS Management nCM=3	3	2 (CM1, 2)	2 (CM1, 3)	0	3 (CM1, 2, 3)
4	Lecturers, Site co-ordinators, facilitators and assessors nL=18	18	6 (L3, 6, 9, 15, 17, 18)	4 (L1, 2, 6, 14)	11 (L4, 5, 7, 8, 10, 11, 12, 13, 14, 15, 16)	2 (L3, 14)
6	General Practitioners nGP=10	2	0	0	1 (GP1)	1 (GP6)
7	Rehabilitation Doctors nRD=10	1	1 (RD3)	0	0	0
8	Interdisciplinary team members nT=21	1	0	1 (T10)	0	0
9	Patients nP=22	0	0	0	0	0
Total	Aggregate sample	27	9	7	14	7

Appendix 16c: Representation of professions and experts in disability and rehabilitation

3	CRS Management	1 (CM2)	2 CM1, 3)	0	0	0	0	0	0	NA
4	Lecturers, Site co-ordinators, facilitators and assessors nL=18	4 (L2, 3, 7, 9)	1 (L1)	0	6 (L5, 6, 10, 11, 12, 17)	0	0	0	0	1 (L18)
8	Rehabilitation Doctors involved with the programme (1 of nRD=10)	NA	NA	NA	NA	NA	1 (RD3)	NA	NA	NA
	Rehabilitation Doctors not involved in the programme (9 of nRD=10)	NA	NA	NA	NA	NA	9	NA	NA	NA
9	Interdisciplinary team members involved with the programme(1 of nT=21)	0	1 (T10)	0	0	0	NA	0	0	NA
	Interdisciplinary team members not involved with the programme (20 of nT=21)	4 (T5, 7, 16, 18)	10 (T1, 2, 3, 4, 6, 8, 9, 11, 17, 21)	1 (T13)	0	1 (T14)	NA	2 (T15, 20)	2 (12, 19)	NA
10	Patients involved with the programme (2 of nP=22)	NA	NA	NA	NA	NA	NA	NA	NA	0
	Patients not involved with the programme (20 of nP=22)	NA	NA	NA	NA	NA	NA	NA	NA	9 (P9, 10, 11, 12, 13, 14, 15, 16, 18)

	Total participant per category directly involved with the programme	4	4	0	6	0	1	0	0	1
	Total participants per category not directly involved with the programme	4	10	1	0	1	9	2	2	9
	Total participants per category	8	14	1	6	1	10	2	2	10

Appendix 16d: Representation of health conditions according to list obtained from literature

Health conditions and impairments	Stroke	Head injury	Amputation	Spinal cord affliction	Cerebral palsy	Psychiatric	Intellectual impairment	Visual impairment
Representation in sample 9	2 (P19, 20)	1 (P17)	3 (P7, 12, 13)	5 (P11, 14, 15, 16, 18)	3 (P5, 21, 22)	1 (P6)	1 (P4)	2 (P1, 8,)
Representation in samples 2-8	0	0	2 (RD4, T14)	0	0	0	0	0
Aggregate sample representation	2	1	5	5	3	1	1	2

P7 had an upper limb amputation. T14 has Phycomyelia with a congenital absence of upper limbs and is included in the category of amputees. The remaining amputees had lower limb amputations.

Appendix 16e: Representation of additional health conditions offered by respondents

Health conditions and impairments	Hearing impairment	Musculoskeletal related	Epilepsy
Representation in sample 9	1 (P10)	3 (P3, 4, 9)	1 (P2)
Representation in samples 2-8	1 (S3-7)	0	0
Aggregate sample representation	2	3	1

P4 also had Rheumatoid arthritis in addition to intellectual impairment

Appendix 17: Extent to which questionnaires were completed

Appendix 17a: Section B: Completion of questions using a Likert scale

Number of non-responses to individual questions using a Likert scale

Respondent	Number of questions not answered	Comment
MC4	1	
CM2	2	
CM3	2	
L2	5	Respondent L2 wrote that they did not have enough information for some of the questions and failed to answer five questions. The rest of the questionnaire was answered with 15 “not applicable” responses out of the 68 Likert scale answers (22%) and included additional narrative so was considered acceptable.
L8	1	
L7	1	Respondent marked off two options in the Likert scale for one question. This was tallied as a non-response.
L11	2	
L12	1	
L19*	24	Respondent marked 35 of the questions relating to indicator areas 1-4 and failed to answer 24 questions relating to indicators areas 5-9. No qualitative responses were offered. This questionnaire was excluded from data analysis
S3-18	1	Respondent made a mark overlapping two options in the Likert scale for one question. This was tallied as a non-response.
T16	1	Respondent marked off two options in the Likert scale for one question. This was tallied as a non-response.
P18	1	

Appendix 17bi: Section B: Completion of open ended questions: Sample 5 (group 1)

Response rate of sample 5 (group 1) to individual open ended questions

Indicator/ Question number	2.1	2.1	2.22	2.23	3.3	3.3	6.6	6.6
Question theme	Most useful educational methods	Least useful educational methods	Health conditions which you consider to cause disability in SA which should be taught in the rehabilitation programme	Bio psychosocial aspects of these health conditions that you would like to learn about	Most useful assessment methods	Least useful assessment methods	Most useful resources	Least useful resources
Number and codes of non-responses	0	0	1 (S3-12)	3 (S3-8, 26, 37)	0	2 (S3-12, 13)	0	8 (S3-2, 11, 12, 13, 22, 29, 32, 34)
Number of responses	37	37	36	34	37	35	37	29
Response rate	100%	100%	97%	92%	100%	95%	100%	78%

Appendix 17bii: Section B: Completion of open ended questions: Sample 5 (group 7)

Response rate of student sample 5 (group 7) to individual open ended questions

Indicator/ Question number	3.3	3.3	6.6	6.6
Question theme	Most useful assessment methods	Least useful assessment methods	Most useful resources	Least useful resources
Number of non-responses	0	2 (S6-3, 9)	1 (S6-9)	4 (S6-2, 3, 7, 9)
Number of responses	11	9	10	7
Response rate	100%	82%	91%	64%

Appendix 17biii: Section B: Completion of open ended questions: Sample 6, 7, 8

Response rate of samples 6, 7 and 8 to individual open ended questions

Indicator/ Question number	Sample	2.24	2.24	2.24
Question theme		Knowledge required re medical management of disability	Knowledge to be learnt from other disciplines	Knowledge required regarding community resources
Number of non-responses	6 nGP=10	0	0	0
Number of responses		10	10	10
Response rate		100%	100%	100%
Number of non-responses	7 nRD=10	1 (RD5)	0	1 (RD6)
Number of responses		9	10	9
Response rate		90%	100%	90%
Number of non-responses	8 nT=21	4 (T3, 5, 12, 20)	0	2 (T3, 12)
Number of responses		17	21	19
Response rate		81%	100%	90%

Appendix 18: Results of students in sample 5 (student group 7)

Available assessment results of student sub population 7 sample participants. (Blanks designate that no results were available.)

	Assessment			
Respondent	Mid Phase	Theory test	Theory exam	Work rehabilitation task Late Phase
S6-1	70	87	73	58
S6-2	61		67	56
S6-3		60	60	
S6-4		53	73	
S6-5		80	67	67
S6-6	63	60	60	65
S6-7		47	47	70
S6-8		60	47	55
S6-9		87	73	52
S6-10		53	73	66
S6-11		80	60	